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AMERICAN ARTISAN and Hardware Record

Vol. 80. No. 1.

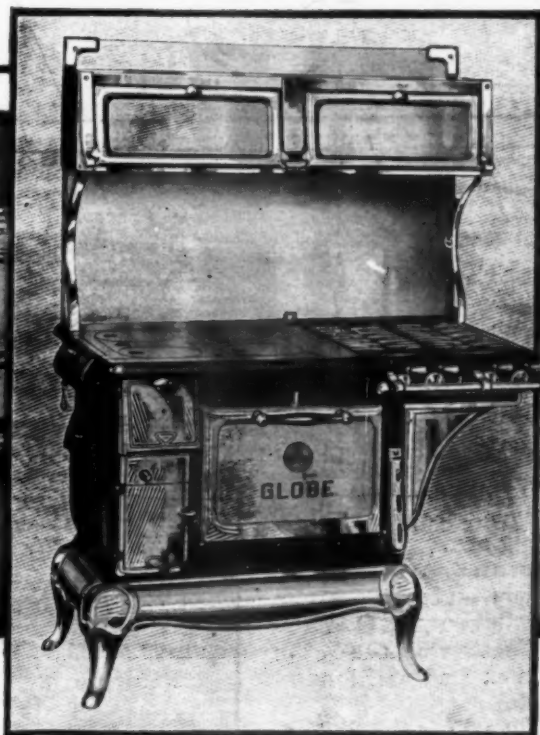
620 SOUTH MICHIGAN AVENUE, CHICAGO, JULY 3, 1920.

\$2.00 Per Year.

GLOBE Gas-Kol Combination Ranges



Warm in Winter



Cool in Summer

They Sell All Year Round Because They're Used All Year Round

No long storage, no waiting for the selling season. Every month is a selling month for Globe Gas-Kol Combination Ranges.

And what a selling argument the combination feature proves itself! Any kind of heat, any time—with coal, wood or gas. Just what housewives want!

Many exclusive features. Handsome in appearance, a perfect baker, nothing complicated, lasts a lifetime. Cuts fuel bills at least 35%. Big sales possibilities in your locality.

Write for Complete Dealer Information

Let us send you free literature that describes and illustrates the various features of the Globe Gas-Kol Combination Range. Learn how you can build up a substantial range business. Write today.

THE GLOBE STOVE AND RANGE CO., DEPT. K-2, KOKOMO, IND.

"Master Stove Builders"

Also Makers of the Globe Pipeless Furnace

"QUICK COMFORT" OIL HEATERS *are ready for shipment now*

If you have not placed your order for fall delivery do so at once

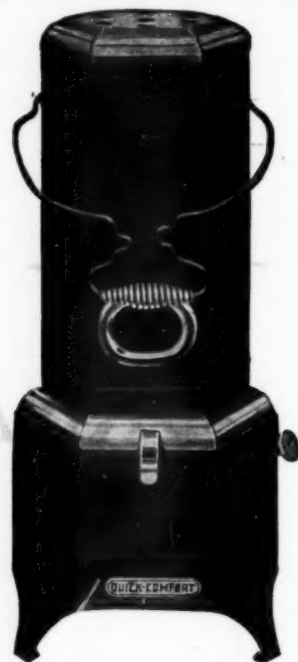


"QUICK COMFORT" OIL HEATERS

have reinforced fount bottoms, use extra heavy wicks which cannot stick and the two piece smokeless device insures an extremely hot flame.

For more particulars write to

QUICK MEAL STOVE CO.
DIVISION of AMERICAN STOVE CO.
825 Chouteau Ave. ST. LOUIS



MAHONING HEATING SYSTEMS

"The Mahoning Type D Is the Best Furnace I've Ever Seen"

"The Mahoning Type D is the best furnace I've ever seen," a man wrote us not long ago.

This is the comment we are hearing from dealers and consumers in all parts of the country. Quality tells every time. That's why the Mahoning commands an exalted position in the furnace world.

The Mahoning Type D is the heater with the "horseshoe" or return flue radiator. Do not confuse it with the ordinary furnace of this type. It is in a class by itself.



A limited amount of territory is still available. Good dealers now have an opportunity to "cash-in" on the Mahoning demand. Write for our special proposition today.

The Mahoning Foundry Co.
622 Poland Ave., Youngstown, Ohio
A Mammoth Plant With a Mammoth Production



WRIGHT PIPELESS HEATERS

ESTABLISHED 1880

Representative of
The Hardware, Stove,
Sheet Metal, and Warm
Air Heating and Venti-
lating Interests

AMERICAN ARTISAN and Hardware Record

Address all communications and
remittances to
AMERICAN ARTISAN
AND
HARDWARE RECORD
620 South Michigan Avenue
Chicago, Illinois

PUBLISHED EVERY SATURDAY BY ESTATE OF DANIEL STERN

TERMS OF SUBSCRIPTION IN THE UNITED STATES AND ITS POSSESSIONS (Invariably in Advance) ONE YEAR POSTAGE PAID \$2.00
FOREIGN COUNTRIES ONE YEAR POSTAGE PAID \$4.00 CANADA ONE YEAR POSTAGE PAID \$3.00

Entered as Second-Class Matter June 25 1885 at the Post Office at Chicago, Illinois under Act of March 3rd 1879

Vol. 80. No. 1.

CHICAGO, JULY 3, 1920.

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IN THE WELTER of theories and policies which characterize a presidential campaign the needs of business are likely to be obscured by vote-getting expediency. Partisanship may be necessary to the preservation of political freedom of choice. But it has no legitimate place in commerce and industry. The essential thing today is that merchants and manufacturers unite in advocating certain indispensable measures for the good of the nation. A business platform upon which all can readily agree would include the following planks:

Business Platform.

Organize the nation's consumers for defense against profiteers in labor and materials, and for equalization of wages and prices.

Require cost accounting in all business as a basis for determining fair prices, wages and profits.

Settle wage disputes by collective bargaining and arbitration, enforced by economic pressure from the consumers.

Curb production of luxuries by giving priority of transport, fuel and credit to necessities.

Equip railroads and steamship lines for cheap distribution. Provide modern freight handling machinery at all terminals. Aid road improvement by bank credit priority.

Export only surplus products to avoid scarcity at home.

To save foreign trade, accept Europe's gilt-edged securities in payment for our excess of exports over imports. Government leadership is needed in this financing under the Edge law.

Raw material produced abroad should be assured to our industries by combinations of manufacturers with Federal support. America should withhold her trade from any country discriminating against us in this respect.

No government ownership of industries is necessary in time of peace.

Encourage enterprise by removing war taxes on profits.

Distribute the tax burden widely by a levy on all gross earnings.

Spread the war debt load by deferring sinking fund establishment, and refunding maturing notes in long-term bonds.

Aid farm labor immigration. Provide ships, if necessary. Repeal the literacy test.

Establish more mechanical trade schools in all large cities, under supervision of industrial and commercial bodies.

Permit larger loans by savings banks for home-building. Aid ex-service men to buy homes, farms or insurance. Train disabled soldiers in occupations. Provide for them until they are self-supporting.

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THE MAIN ARGUMENT advanced against the use of price tags in the store and the mention of prices in advertisements is that people are more interested in quality than in cost. Theoretically, this sounds plausible. In practice, however, it does not conform to the mind of the folk. It is conceivable that a millionaire whose money is piling up faster than he can spend it may not take much interest in a difference of a dollar or two in the price which he has to pay for a commodity which he desires to possess. But the average run of people—even in these prosperous days—are under the necessity of counting the pennies in every dollar. In the big cities they frequently find the same article selling at different prices in different stores. Naturally, they buy it in the store which offers it at the lowest figure. The quality being the same, the difference in price is quite a factor in the sale.

No doubt, it is true that quality is a prime consideration in the merchandising of commodities. The argument of quality does not lose strength by being frankly connected with statement of prices. On the contrary, the desirability of an article is enhanced, if, in addition to persuasive presentation of its quality, there is given an explicit quotation of a price which has the appearance of being reasonable. The truth of the matter is that prices are purposely suppressed on articles of luxury for the plain reason that they are sold at an exorbitant profit. A thousand dollar frock is put on exhibition in the display window of a big department store and no price tag is attached to it. The store does not expect to sell the frock to any women of moderate means. The price which is finally quoted to the prospective customer represents a profit of three or four hundred per cent. It is never mentioned until at the very close of the transaction. The so-called quality of the frock, the exclusiveness of its design, etc., are harped upon until the would-be buyer has developed a desire for it strong enough to overcome the shock of any price which may ultimately be quoted.

This process of vanity and allied emotions does not operate in the merchandising of hardware. Mechanics, contractors, householders, and others who buy tools, kitchen utensils, vacuum cleaners, or automobile accessories, have in mind, first and foremost, utility and

service rather than vanity and display. They are strongly susceptible to the appeal of quality. In fact, they insist upon getting trustworthy material and workmanship in the things which they buy in a hardware store. Also, they want to know the prices in advance of purchase. This is a reasonable state of mind. No one cares to trade in a store where favoritism is shown, and the suspicion of favoritism is strong in the minds of those who trade at a store where none of the goods has a price mark. Naturally, they imagine that different prices are quoted to different customers for the purpose of effecting difficult sales.

All this is obviated by the use of price tags. Price tags help sell goods. Some retailers object to the placing of price tags on the articles in their store for the reason that it reveals their prices to competitors. This is a flimsy objection. If competitors want to find out the prices there are many ways of doing so. It is wiser to conduct one's own store honestly, sincerely, and with friendly service to the customer at reasonable prices and not to waste one's brain tissue worrying about what one's competitor may be doing to the matter of prices. In a big percentage of cases today there is practically no competition of prices. The keenest competition is competition of service. That kind of competition is wholesome and makes for the general progress.

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A SOMEWHAT COMPLEX picture is presented by the tangled situation of traffic, tightening of credit conditions, and political uncertainties which mark the opening of the second half of the year. While the close of the first half of a year is usually approached with some shrinkage in volume of business, yet seasonal influences partly explain the contraction of operations that is evident in various quarters, according to Dun's review of business. Retarding factors at present do not appear most conspicuously in weather conditions or in vacation interruptions, as is sometimes the case at this period, but rather in transportation difficulties, which are intensified by fresh labor troubles in some localities, and in monetary restrictions and price uncertainties. These are elements that have lately combined, with some other phases, to appreciably curtail commercial transactions, and the prevailing lull, in view of its causes, may prove to be more than a passing development.

That fundamental economic changes are in progress, differing at bottom from those which have been witnessed on previous occasions since the war's ending, is not only demonstrated by movements in some leading trades and industries, but also by the reversal of sentiment among both sellers and buyers, and by statistics of bank clearings and failures. The business readjustment, moreover, is not confined to any section of the country, although perhaps more apparent in the East than elsewhere, and the price declines which are part of it are clearly, not limited to the reduction sales at retail.

That the main trend of wholesale markets is also downward is evidenced by Dun's list of quotations, which again discloses more recessions than advances,

and the continued disinclination of many interests to commit themselves extensively for the future is largely based on expectations of further price reaction to follow. While the sudden and sharp fall of prices of some commodities, as of raw silk and raw wool, may not be duplicated in other lines, yet each week adds to the indications of yielding, which may later extend to food products if present prospects for abundant grain crops are realized.

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ALMOST INVARIABLY WE find that the man who complains about his lack of success in business has a more or less surly disposition. He may not be **Happiness Is Same as Good Luck.** surly by nature. It is probable that he got a bilious turn of mind from taking things too seriously. At any rate, he has acquired a wrong slant with regard to prosperity and the purpose of life. He attributes the growth of his competitors' trade to good luck. In this he is right, but he does not understand what good luck means. The fact of the matter is that good luck is only a synonym for happiness of mind. Happen and happiness come from the same root word. Good things happen to happy people. The dictionary defines happiness as "an agreeable feeling or condition of the mind arising from good fortune or propitious happening of any kind."

The merchant who is of a happy disposition, whether by nature or training, makes a pleasing impression upon his customer. They like to come into his store because of his cheerfulness. His smile is a magnet that draws trade. Thus, it happens that they buy more goods from him. This happening, of course, adds to his happiness. The more happenings of this agreeable kind there are, the more reason there is for his continuing to be happy and to act happily toward his patrons.

This is all there is to good luck. Good luck is not merely blind chance. Good luck in business is the practice of happiness in business. The dealer who keeps his thoughts free from worry is able more intelligently to manage his affairs and to present a smiling countenance at all times with practically no deliberate effort. The atmosphere of his store is optimistic. Instinctively people respond to blitheness of spirit. The most confirmed pessimist can not refrain from laughter at a comic opera when every one else in the audience is laughing. In spite of himself, he is swept along with the tide of good humor. Applying these undeniable truths to merchandise, it is plain to any one that a jolly merchant is certain to attract more people than one who is solemn and funereal. Bad luck follows sour faces. Good luck attends upon smiling countenances.

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A COMPARATIVELY SMALL pair of hinges will serve to swing a big door. Some of the most successful sales of goods have been pivoted upon seemingly simple ideas. It is not always the ornate and eloquent advertisement which produces the largest results. Indeed, the best kind of publicity is that which is worded in a natural way and which uses the little everyday twists of speech. Baby fingers are often

Suggestion for Selling More Paint.

more potent in affairs of life than ropes of pearls or Aladdin-like palaces on Fifth avenue.

At first sight, there is not much connection between baby fingers and selling more paint in a hardware store. Yet, one of the strongest bits of advertising copy which has been produced in many a day is centered around the simple fact of baby fingers. It has been effective in increasing sales of paint for scores of dealers who have used it. It is worded as follows:

"Have you ever considered painted walls in your home while the children are small? Finger marks can be washed off without injury to the paint. Painted walls are really artistic. Drop in and let us show you some color combinations. See for yourself how pretty a painted interior can be made. Let us paint a room or two for you this spring. Then stop worrying about the kiddies' sticky fingers."

RANDOM NOTES AND SKETCHES.

By Sidney Arnold.

I had a pleasant visit Wednesday of this week from C. H. Spaulding, of the Farris Furnace Company, Springfield, Illinois.

* * *

The best way to overcome some kinds of trouble is to face them rather than to try to dodge them, says my friend Sam H. Jacobs of the Fanner Manufacturing Company, Cleveland, Ohio. He points the moral with this tale:

A grocer who was troubled with the toothache determined to have the offender extracted; but there being no dentist near, he resolved to do the job himself; whereupon he filled the excavation with powder, but being afraid to touch it off, he put a slow match to it, lighted it, and then ran around the corner to get out of the way.

* * *

Why silversmiths become rich is explained by my friend James R. Graves, sales representative in Chicago territory for the Detroit Vapor Stove Company of Detroit, Michigan, in the following frank dialogue:

Three little girls each received a silver spoon as a Christmas gift.

"Mine has 'From Your Papa' on the handle," said Georgia.

"Mine says 'To My Loving Daughter,'" chimed in Margaret.

"And mine," said Mabel proudly, "says 'Hotel Auditorium.'"

* * *

To my friend Robert B. Jones of the Clyde Cutlery Company, Clyde, Ohio, I am indebted for the following bit of amusement:

"Sam," said a darkey to his ebony brother, "how am it dat this telegraph carries de news from dem wires?"

"Well, Caesar, now s'pose dat am a dog free miles long."

"Neber was sich a dog; don't blieb dat."

"Now jess wait minit; I'se only illustratin, you stupid niger? Now, dis yer dog, you see, jess puts his front feets on the Hoboken sho, and he puts his hind feets on the New York sho."

"Yesser."

"Now, s'pose you walk on dis yer dog's tail in New York."

"Yesser."

"He'll bark, won't he?"

"Yesser."

"Well where will dat dog bark?"

"In Hoboken, I calc'late."

"That am jist it. You walk on the dog's tail in New York and he bark in Hoboken; an dats de way de telegraf work."

* * *

Here is a story which typifies certain present-day conditions in our industrial situation. It was sent me by my friend Frank B. Higgins of St. Louis, Missouri, First vice-president National Association of Sheet Metal Contractors. You can make your own application of it.

A woman palmist was prosecuted, and one of the witnesses called by the police was an individual who did not appear to be overburdened with intelligence.

During a smart cross-examination the defendant's counsel asked him:

"On first going into the room, did you pay a quarter to the defendant?"

"Yes," was the reply.

"What did she tell you in return for the money?"

"Oh," said the witness, "she towed me lots o' things—some of 'em true, some of 'em half true an' some of 'em lies!"

"Now," continued the counsel, after the laughter had died away, "this is the point I wish to get at. Was there any attempt at imposition? Did the defendant impose upon you at all?"

"Oh, dear, no," was the response. "I knowed it wor all gammon, so there couldn't be no imposition. Besides, it wor a bad quarter as I guv her to start wi'!"

* * *

Talking about wise men, my friend L. K. Wynn of the Black Silk Stove Polish Works, Sterling, Illinois, tells about a man who never kicks about household expenses.

Asked why he never complains, he answered:

"My wife would tell me to run the house."

* * *

A giant fire cracker makes more noise and does twelve thousand per cent less work than one-half the amount of dynamite. That's just the way with trouble. It creates a tremendous amount of disturbance in some people's lives. In reality, it doesn't amount to a hill of beans. Like the giant fire cracker, it is the most exaggerated bit of worthlessness upon which anybody ever spent money. On the other hand, joy delivers the goods. It enriches us. It justifies life. It fills the sunset with delight. It puts melody into the robin's song. It brightens the eye of age and makes the rose more than a mere collection of petals.

Joy and Trouble.

Trouble makes a lot of noise;
Hardly ever hears our joys;
Trouble is a rampant fellow;
Joy is gentle, joy is mellow;
Trouble talks with roar of thunder,
Joy is soft as whisper wonder;
Trouble makes a lot of fuss;
Joy does quiet good to us.

UP TO THE MINUTE NEWS SIFTINGS

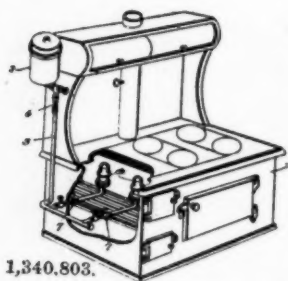
The Weir Stove Company has let the contract for the erection of a brick, mill construction, one story, 35x115 foot foundry, one story 48x60 foot sand shed and a three story, 70x100 foot, factory addition, at Taunton, Massachusetts.

SOUTHERN STOVE MANUFACTURERS WILL MEET IN CLEVELAND.

For the first time in the history of the organization, a regular quarterly meeting of the Southern Association of Stove Manufacturers, will be held north of the Mason and Dixon line. In response to a cordial invitation from Samuel H. Jacobs, vice president and general sales manager, of the Fanner Manufacturing Company, Cleveland, Ohio, the Association will hold its third quarterly meeting of the year, August 30 and 31, and September 1, 1920, in Cleveland, Ohio. The action of the Association in this matter shows the high regard in which Mr. Jacobs is held by members of the Southern Stove Manufacturers' Association.

LIQUID FUEL BURNER IS PATENTED.

United States patent rights under number 1,340,803, have been granted to Earl H. Tate, Los Angeles, California, for a liquid fuel burner described herewith:



between the arms of the body and the body at the junction of the tube therewith.

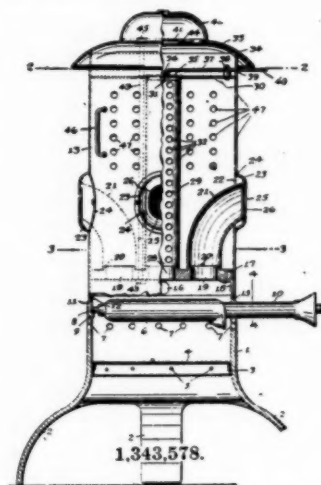
NEW STOVE AND FURNACE COMPANY IS ORGANIZED IN OHIO.

With a capital of \$350,000, the National Furnace and Stove Company has been formed with headquarters at 204 Medford Building, Akron, Ohio. The officers of the Company are George Heinicke, President and General Manager; C. C. Earnest, Vice-President; R. H. Montis, Secretary-Treasurer; V. W. Jaeger, General Sales Manager; and R. W. Mizner, General Superintendent. The Company is planning to build a factory in Ravenna, Ohio. It will be a two-story structure of brick and steel containing a tin shop and foundry. The foundry will be 82x121 feet, with a

capacity of fifty complete furnace castings daily. The tin shop and office building will be 82x100 feet and the entire building will cover an area of about 20,000 square feet. Because of the scarcity of homes in Ravenna, the National Furnace and Stove Company intends to build houses which will be sold to its employees on the easy payment plan. Building operations are expected to begin the first of September.

PATENTS PORTABLE HEATING STOVE.

Under number 1,343,578, United States patent rights have been procured by Maximilian J. Otto, of New York City, for a portable heating stove described in the following:



A stove comprising a base, a burner supported therein, and a cylindrical heating member detachably supported upon the base, said heating member having a heat absorbing and radiating plate fixed thereto near its bottom in cooperative relation to the burner, and a plurality of heat conveying tubes extending from said plate to its cylindrical wall.

ORGANIZE A SCHOOL IN YOUR STORE.

The average store owner throws up his hands when the suggestion is made that he start a school. In 9 cases out of 10 he is an old-time salesman who was born with a certain knack for selling and training. He probably boasts that he can go on the floor and outsell any two of his present sales force, and he very often takes his own pen in hand and dashes off advertising which satisfies himself but which seldom brings new business to the store. He rebels at the idea of his being responsible for the improvement of the selling ability of his own organization, yet he must do this sooner or later, if he is to compete with the newer type of merchant who is presenting himself in almost every town and city in this country. Teaching is one thing and selling is another, but the average store owner can easily form a selling club and conduct it with the assistance of two or three of his own people. In every organization you can always find someone who enjoys cooperative work, and who can serve as chairman of a committee of three to plan their meetings, and store selling demonstrations and study classes.

Seek perfection in your business.

THE WEEK'S HARDWARE RECORD

Of Interest to Manufacturer, Jobber and Retailer

AMERICAN ARTISAN AND HARDWARE RECORD is the only publication containing western hardware and metal prices corrected weekly. You will find these on pages 38 to 43 inclusive.

The Pratt and Whitney Company is taking bids for a small tool building at Hartford, Connecticut.

The Cincinnati Tool Company has plans for a machine shop, one story, 101x130 feet, at Norwood, Ohio.

The Central Screw Company plans a plant, one story, 60x60 feet, to cost \$20,000, at Jackson, Michigan.

The Acme Wire Company will erect a one story, 16x40 foot office building extension at New Haven, Connecticut.

Bids have been closed for a 5 story plant for the Greenfield Tap and Die Corporation, at Greenfield, Massachusetts.

Veihl and Crawford Hardware Company have increased their capital at Fort Worth, Texas, from \$60,000 to \$125,000.

The American Wringer Company has let the contract for a three story, 42x95 foot plant addition at Woonsocket, Rhode Island.

The Aluminum Ware Company, 557 East Clinton Street, Elmira, New York, has plans for a plant addition to be one story, 136x300 feet.

The Carde Stamping and Tool Company, of Saginaw, Michigan, has awarded a contract for a plant, one story, 50x200 feet, to cost \$75,000.

The Sanitary Strainer and Novelty Manufacturing Company, capitalized at \$15,000, has been chartered by J. E. Adams and Gus Gabrielson, at Portland, Oregon.

The Guardian Metal Weather Strip Company, of New York City, has been incorporated with a capital of \$11,000, by M. Tate, M. and E. Hayes, 303 West Forty-third Street.

The Dominion Novelty Company, Ltd., of Hampton, New Britain, has been incorporated to manufacture washing machines, etc., with a capital of \$50,000, by A. J. Tufts, Albert W. Covey and others.

The Welch Hardware Company has been incorporated at Welch, West Virginia, with a capital of \$50,000, by B. O. Swope, John C. Summers, John M. Turner, Andrew F. Leckie and W. B. Lovett.

The General Metallic Hose Corporation has been incorporated at Philadelphia, Pennsylvania, with a capital of \$10,000, by A. W. Swartz, Ardmore, Pennsylvania; H. M. Goodall and F. B. Williamson.

The Lincoln Twist Drill Company, which has been taken over by the Greenfield Tap and Die Corporation, Greenfield, Massachusetts, contemplates the erection of a factory addition to cost \$40,000, at Taunton, Massachusetts.

The Soss Manufacturing Company, 776 Bergen

Street, Brooklyn, manufacturer of hardware specialties, has awarded contract to William Flannagan, 118 East Twenty-eighth Street, New York, for a three story addition, 100x100 feet, at Bergen Street and Grand Avenue, to cost about \$50,000.

BELIEVES GOOD ROADS ARE NEEDED TO PROMOTE HARDWARE TRADE.

Accessibility is a fairly big word. Webster defines it as "the quality of being accessible, or of admitting approach; receptibility." A store is accessible when it is not difficult to reach. The nearer it is to the main lines of travel and the fewer are the difficulties in the way to it the easier it is to get people to come to it. This, in a nutshell, is the whole story of good roads. It includes the element of greater profit for all concerned. The farmer who can haul his produce to market at the lowest price per a mile receives a larger net return for the fruits of his labor. He is, therefore, better able to purchase modern conveniences for himself and his family as well as for the work of his farm. This means a wider distribution of the means of physical comfort as well as a more rapid spread of cultural influences. The hardships of the farm are reduced to a minimum. Individual lighting systems, electric household appliances of all descriptions, modern plumbing, warm air heater plants—in a word practically all of the conveniences of city life and intercourse are made available through accessibility developed through good roads.

It is for these and similar reasons that R. C. Hibbard, who has recently opened a hardware and implement store at Wilberton, Oklahoma, under the name of the Hibbard Hardware Company, is an enthusiastic advocate of the good roads movement. He believes strongly in the sturdiness and progressiveness of the average American farming community.

Mr. Hibbard plans to carry a general line of hardware as soon as he can secure all the necessary supplies. In the meanwhile, his stock includes paints and varnishes, china and crockery ware, razors and strops, shaving supplies, cutlery, guns and ammunition, hunting supplies, flash-lights and batteries, wire fencing, refrigerators, aluminum ware, galvanized ware, rope and binder twine, and churns. He intends also to carry a line of hardware, lumber and farm implements of first quality.

With the assistance of his wife, who is a keen student of merchandizing, he is designing attractive and resultful window displays. In addition he advertises in the local newspaper and neglects no opportunity to gain the goodwill of the people in his territory. Realizing the usefulness of a mailing list he is systematically preparing a roster of prospective customers with a view to intensive publicity for his store.

Mr. Hibbard is a member of the Woodmen of the World and stands high among its members in his vicinity. He believes in fraternal organizations as a means of promoting good fellowship and he favors the organization of merchants' clubs for the common good of the town's business as well as a means for drawing trade from the surrounding country.

NATIONAL CASH REGISTER COMPANY SETS EXAMPLE OF WELFARE WORK.

Beginning at an age before habits become deeply rooted, the National Cash Register Company, Dayton, Ohio, is educating the boys and girls to become good citizens and loyal workers. About twelve hundred children are guests of the Company at a two-hour



The Boy Gardeners at Work in Their Gardens Near the Factory of the National Cash Register Company at Dayton, Ohio. The Ground, Seeds, and Tools Are Furnished by the Company Free of Charge. The Vegetables Grown Belong to the Boys.

entertainment every Saturday morning in the factory auditorium and in the National Cash Register City Club in the heart of Toledo.

No distinctions are made. The meetings are open to all youngsters in the community. The fundamental requirements of good health and good habits are attractively taught and developed as preparations for good citizenship.

That intelligent welfare work pays big dividends in the general betterment of the younger generation has been amply demonstrated by the things already achieved through the National Cash Register Company's work in a section of Dayton, Ohio, where formerly it was hard to keep the boys and girls from developing habits of mischief and destruction. A public kindergarten was opened for the boys and girls. It was used as a gathering place for the children and as a center for all the neighborhood activities. The girls were taught sewing, embroidering, and cooking. The boys were given lessons in wood carving and clay moulding.

Every boy was given a garden of his own. The National Cash Register Company furnished land, tools, seeds, and competent instructors to teach the lads how to raise vegetables. So successful was the experiment from the beginning that the Boys' Gardening Company was organized and incorporated under the laws of Ohio. In the accompanying photograph is shown a part of the ground cultivated by the Boys' Gardening Company. The boys learn how to work, how to overcome difficulties, how to cooperate with one another and how to practice thrift. These are the very virtues which enter into the highest form of good citizenship.

TRADE-MARK IS REGISTERED.

Thurston-Bernay Company, of San Francisco California, has secured United States Patent Office registration, under

SKROO-ZON
125,136.

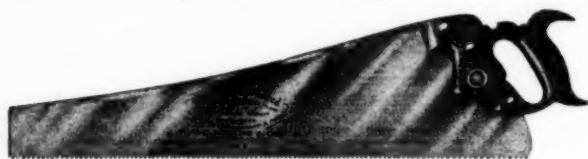
number 125,136, for the trademark reproduced

herewith. The particular description of goods is tool handles and the Company claims use since July 7, 1919. The application for registration was filed November 20, 1919.

SCRUPULOUSLY SELECTS MATERIALS.

Saws in order to do the best work possible must be made of materials which have been proved either in practice or by testing to be of the proper composition.

The E. C. Atkins and Company, Incorporated, Indianapolis, Indiana, manufactures a complete line of saws, one of which is illustrated herewith. The materials used in the construction of its saws are scrupulously selected. The steel is chemically analyzed at the mills. Only that grade of metal is employed which experience has taught to be the proper



Atkins Saw, Made by the E. C. Atkins and Company, Incorporated, Indianapolis, Indiana.

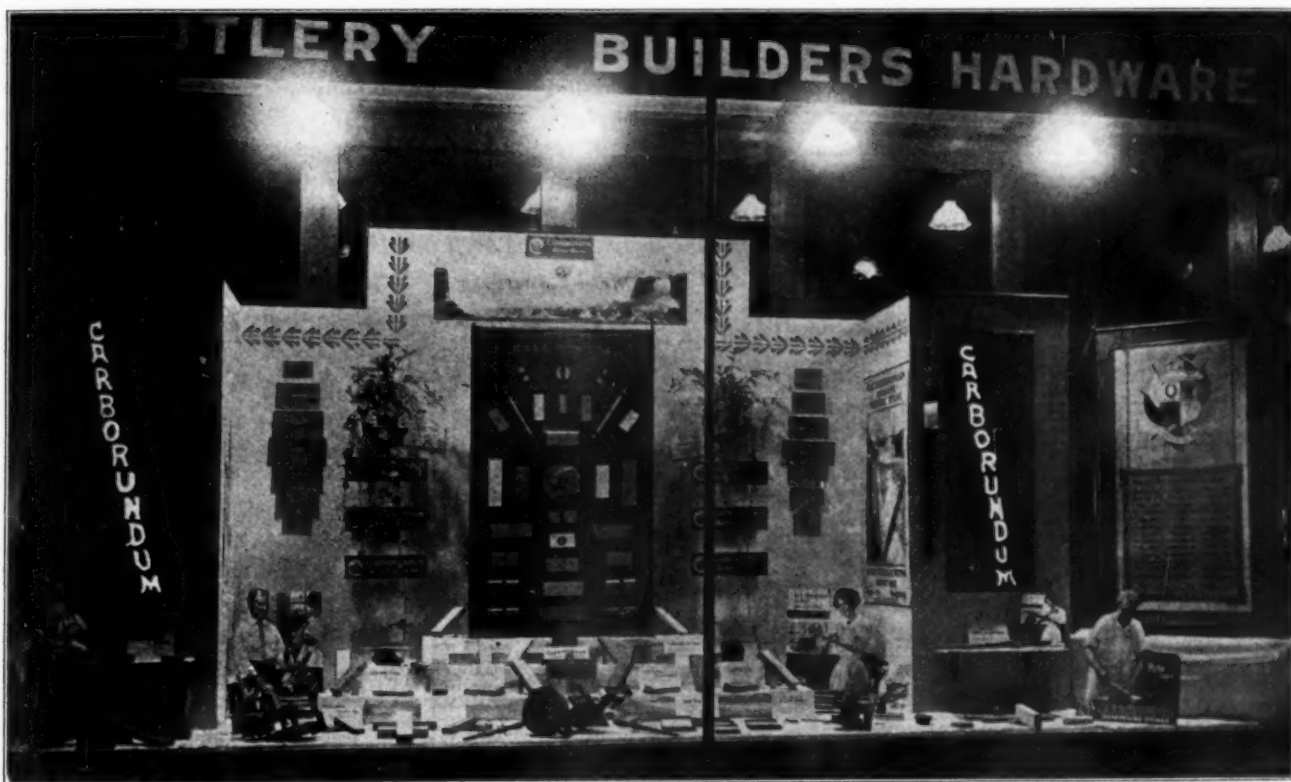
kind for the making of saws. Of course, various patterns of saws require different grades of steel. The E. C. Atkins and Company, Incorporated, uses the metal best adapted to the particular needs of a specific saw. Carefulness is exercised in the smithing of the blades. Likewise, grinding and tapering of the cutting edges are skilfully executed. The handles of all the E. C. Atkins Saws are virtually of two styles. They are old style straight across shape and the Atkins Improved Perfection Pattern. The old style handle is still made by this company because there is a certain demand for it among mechanics who have not thoroughly tested the Perfection Pattern, or who may in any event prefer it. Either handles can be furnished. Write to the E. C. Atkins and Company, Incorporated, Indianapolis, Indiana, for interesting literature pertaining to the saws of its manufacture.

EXHIBITS IN AMERICAN ARTISAN WINDOW DISPLAY CONTEST

WINDOW EXHIBIT OF CARBORUNDUM SHARPENING STONES RESULTS IN BIG INCREASE OF SALES.

The market for sharpening stones is almost unlimited. It includes the kitchen and the dining room of the home. The sharpening stone saves some of the ten commandments from being smashed into fragments when the head of the house sets out upon the delicate task of carving the Sunday roast or the holiday turkey with a knife which ordinarily has no more edge than mother-in-law jokes. A good piece of carborundum will put the carving knife into just the

Among the customers of the hardware dealer there is scarcely one who can not be induced to buy some form of carborundum sharpening stone. Penknives, and scissors, surgeons' scalpels and housewives' bread knives can easily be put into a high state of efficiency with the aid of a suitable carborundum sharpening stone. If it were practicable or convenient to take a census of the hardware dealer's customers with regard to their possession of a carborundum sharpening stone, it would be found undoubtedly that only a comparatively small percentage of them owned so useful an instrument. The dealer, therefore, has great possibilities for increasing his sales of these



Window Exhibit of Carborundum Sharpening Stones Arranged by E. A. Saur, 1410 Yale Place, Minneapolis, Minnesota, Awarded Honorable Mention in AMERICAN ARTISAN AND HARDWARE RECORD Window Display Competition.

right condition with a few strokes. Good humor will then be restored, serenity of the home preserved, sizzling expletives left unsaid, and the pleasure of the meal multiplied.

The sharpening stone in the kitchen has scores of uses which contribute to the tranquillity of the home by doing away with annoyances of dull knives. Two or three strokes of the razor blade over carborundum of the correct fineness will put the proper edge on the blade and send the men folks out to their morning's work with smooth, unbroken skin and a feeling of goodwill toward all their neighbors. Carpenters and other mechanics do better and more precise work when their tools are kept in good condition by the aid of carborundum sharpening stones.

sharpening stones by means of intelligent salesmanship and attractive window displays.

The window exhibit of carborundum sharpening stones—shown in the accompanying illustration—arranged by E. A. Saur, 1410 Yale Place, Minneapolis, Minnesota, affords a helpful model containing many suggestions for merchants who have not yet made a special effort to increase their sales of this line of commodities. The display was awarded honorable mention in AMERICAN ARTISAN AND HARDWARE RECORD Window Display Competition. As described by the designer, the background is built of Compo boards painted with Alabastine. Screen moulding is used to set off the rough edges. Empty container boxes are pasted to the background and the shelves are deco-

rated with living plant vines. Cut out letters on the sides, spelling the word carborundum, are emphasized by the aid of electric lamps from behind. The three signs hung from the shelves on the background, steps in the center of the window, the panel on the top step, the cut outs and signs were furnished by the manufacturers. Mr. Saur, who designed this display, urges hardware dealers to try a like window exhibit and says to them:

"You will be surprised at the number of sharpening stones which you will sell where you think carpenters, workmen, and housekeepers are well supplied."

MERCHANDISING EXPERT DECLARES RETAILERS NEED BETTER SELLING METHODS.

During the past year the Harvard Bureau of Business Research has been recuperating from the effects of the war, says Melvin T. Copeland, Director of the Bureau. We have now, however, struck our pace again, and have also started several new investigations. The trades that we are studying at the present time include retail grocers, wholesale grocers, and shoe, hardware, drug and jewelry retailers. The bureau is also commencing work in other fields. It has under way, for example, a study of the methods of storing materials in shoe factories, and it has taken over from the National Council of Cotton Manufacturers a plan that was developed under my direction last year for the international comparison of prices of cotton cloth.

When the work of the Bureau was first started nine years ago, it was expected that we would spend five or six years on the retail shoe trade and then wind up that investigation for a time in order to devote all our energy to other research. It was also expected that most of our other investigations could be suspended at least temporarily after they had developed to a certain stage. Last year we found it necessary to reconsider our plans and we decided to change our policy. A substantial number of merchants wished to continue to send in reports to us each year to be checked in the office, and there were also numerous requests for up-to-date information on the cost of doing business. Consequently we decided to undertake, for the present at least, to collect annual figures on the cost of doing business in the various trades with which we were at work, among them the shoe, hardware and wholesale grocery trades.

We are now receiving reports from merchants who send us annual statements on the cost of doing business in 1919. These are being checked and tabulated, and the results will be available for our co-operators in the course of a few months. Yesterday I looked over a batch of the reports that had come in from retail grocers. It was apparent from these statements that the cost of doing business in these stores was about the same in 1919 as in 1918. The gross profit was also about the same, and the net profit certainly was no higher in 1919 than it had been in the previous year. In the retail grocery trade the common figure for total expense in 1918 was 14 per cent, for gross profit 16.9 per cent, and for net

profit 2.3 per cent of net sales. The figures for 1919 may of course be modified somewhat when we have tabulated a larger number of reports.

Another item which I always believe it my duty to refer to is stock-turn. We have found in every one of our investigations that the annual rate of stock-turn is one of the most indicative figures. We have found that the stores with a high rate of stock-turn are almost invariably the most profitable stores and, furthermore, that stores with a slow rate of stock-turn generally have a high cost of doing business and a low net profit in percentage of sales.

There are still many difficulties in obtaining reports on the cost of doing business. A good many merchants are not yet keeping books which enable them to fill out a profit and loss statement. We recently received a letter, for instance, from a country storekeeper who stated that he has a truck and Overland pleasure car, uses gasoline, oil, and tires out of the store, buys butter and eggs, gives adjustments on tires, and because of all these and other complications does not believe that he can keep books. He stated: "I have been doing very well in the past, and I do not feel it necessary for me to do the bookkeeping."

Another example is the case of a retail grocer who sent us a report in 1914. That report showed that this retailer was keeping most of his expenses fairly accurately. He did improperly include his ice, telephone, wrapping paper, and a few other small items in purchases of merchandise. He kept no record of the merchandise taken from the store for family use. Moreover, he did not take an inventory, but estimated his stock on hand by adding his purchases and inventory and deducting his sales less an estimated gross profit of 20 per cent. He worked out a figure for his estimated inventory monthly and yearly and never checked it actually by taking stock. We heard nothing more from him until last year when we received a letter stating that he was "plumb disgusted and almost busted." He had been borrowing money by various means in order to try to save his business, but he had lost continually, and since that time has gone into bankruptcy. Had he made a few modifications in his methods of keeping records and taken an annual inventory, I have no doubt that he readily could have saved his business and even turned it into a profitable undertaking. He found out too late that he was losing money, and he did not know where the loss was occurring.

These instances are not cited in any spirit of criticism, for I have deep sympathy with the difficulties of the average retail merchant. Oftentimes his problems are difficult and complicated, and he can not afford a large amount of help to deal with them.

Although I have had little experience in connection with the credit man's job, I have been somewhat surprised at the small amount of attention that is apparently given to expense statements by most credit men. From looking over the reports that we receive, it has seemed to me that frequently it would be possible to judge a man's standing much more accurately by a consideration of his expense statement in connection with his net worth statement. A merchant's expense statement shows whether or not he is keeping track of his business and also whether or not he is

making a profit. I understand that oftentimes a credit risk is rated primarily upon whether the merchant is going ahead with a profit or falling backward with a loss. This is shown most clearly by his expense statement.

One reason why we are collecting annual figures on the cost of doing business in several trades is that for our own purposes as well as for the benefit of our cooperators we wish to keep track of the changes in the cost of doing business from year to year during this period of readjustment. It now looks as if the country might have a period of "spotty business" ahead. In that case we believe that these figures will be of especial interest and value.

Looking at business conditions broadly, without any particular reference to the figures collected by the Harvard Bureau of Business Research, the last year has been one of rather wild business activity. This activity has resulted largely from the inflation of credit and currency in this country as well as abroad. As a matter of fact, we have not yet seriously begun our process of reconstruction. We still have that ahead of us. The goods for which there has been the greatest demand during recent months, to judge from statements which have been made to me personally by a number of business men, are not those in which there was a shortage caused by the war. In numerous instances the greatest demand has been for goods that fall in the class of luxuries.

I judge that some of our business activity also has been rather speculative in character because of the rising market. I have encountered some instances in which merchants placed orders last Fall for their entire requirements of Spring merchandise not only because of anticipated difficulties in securing delivery but also to obtain full advantage of the rising market. This apparently intensified demand. It is now beginning to appear that the last big jump in prices in a number of lines of merchandise has overshot the market. There are already appearing some trade reports of curtailed demand, although the full effects of the latest increase in wholesale prices have not yet been reflected extensively in the prices charged in retail stores.

The financial situation is of course, the largest factor affecting general market conditions. It is difficult to see wherein we have resources to finance our trade at the new level of prices just coming into effect. In a number of instances these increases in price have been 25 per cent, 30 per cent or even more. This means that not only the manufacturers but also the wholesalers and retailers will require a large amount of credit beyond their previous needs. At best it will be difficult to finance our trade at these high levels.

The period of inflation, to be sure, may not yet have reached its crest. Insidious suggestions, usually for selfish or political reasons, are cropping out here and there that more government bonds should be issued or that inflation should be continued by other means. In the long run, however, I am convinced that business will be in a far better position if we go through with the process of deflation which was started last November by the Federal Reserve banks. To mention only one reason for this conclusion, take

the labor unrest. If prices keep on advancing labor unrest inevitably will be intensified. Even at the risk of some temporary hardship, I believe that it will be advantageous to the business of the country to have the upward movement of prices checked now.

Another index to the business conditions which closely concerns the credit man is the number of business failures. During the last three or four years the number of business failures, as reported by Dun and Bradstreet, has been abnormally small. They reached the lowest point in 1919. This small number of business failures can not be due in any considerable measure to better methods of business management. While here and there improvements have been made, nevertheless, we find that there are still a large number of merchants who never take an inventory and who apparently have not been managing their businesses more carefully than before the war. The smaller number of business failures, I believe, is due to the rising prices. The increase in the value of merchandise on hand, I think, has enabled numerous merchants to continue in business when otherwise they would have been forced to suspend. Sooner or later a readjustment must take place. The longer it is postponed the more severe the readjustment will be. During this process of readjustment the merchants of the country will be put to a more severe test than they have experienced for several years. Those who have their businesses well in hand and are following sound methods of management will undoubtedly be able to come through successfully.

WILL AID DEALERS TO SELL WAGONS.

How would you like to have the boys in your vicinity advertise an article for you? That is just what



Junior Roadster Convertible, Made by the Buffalo Sled Company, North Tonawanda, New York.



Showing Box of Junior Roadster Changed to Coaster.

every purchaser of a wagon manufactured by the Buffalo Sled Company, North Tonawanda, New York, does. When a boy becomes enthusiastic over the quality of a toy he has, he will tell his satisfaction to

his playmates. Indeed, the hardware dealer could desire no better salesman for his toy wagon stock than

several satisfied owners. In the illustration herewith is shown the Junior Roadster Convertible made by the Buffalo Sled Company. It is said that this wagon has a national reputation among boys. From coast to coast the youngsters advertise the Junior Roadster

Convertible and other wagons manufactured by the Buffalo Sled Company.

It must be taken into consideration that the satisfaction which these wagons give is not superficial. Because of the durable construction of the wagons made by the Buffalo Sled Company, they gain favor with boys. Their attractive appearance lasts for an uncommonly long time even with the hard usage to which articles of this nature are subjected. The wheels on the wagon shown in the accompanying illustration are of standard automobile type. The hub and bushings are of cold rolled pressed steel. The spokes are of well-seasoned, second-growth white ash, oveled, mitered and machine riveted in hub, with bushing turned over. The bearings are hard-drawn Bessemer steel rollers, running on cold-drawn steel axles. An especially designed cap protects the hub and bearings from dust and grit, and a special washer prevents sliding out and consequently preserves the bearings. In all other details of construction the Junior Roadster Convertible is equally durable and praiseworthy. Besides the advertising which results from satisfied users, the Buffalo Sled Company directly aids retail hardware dealers who handle its products by publicity campaigns conducted throughout the country. It is said that the products of this company have been made known from coast to coast because of the extensively conducted advertising campaigns carried on by the manufacturers. Hardware merchants who desire further particulars pertaining to these products should write to the Buffalo Sled Company, North Tonawanda, New York.

GETS TRADE-MARK REGISTERED.

United States Patent Office registration, under number 129,901, has been granted to the Madden Safety



Razor Corporation, New York City, for the trade-mark shown in the illustration herewith. No registration right is claimed for

the term "DeLuxe" apart from the mark shown in the drawing. The particular description of goods is safety razors and safety razor blades. The Company claims the use of this trade-mark since January 31, 1919.

THE BUYERS MAKE THE MARKETS.

Reviews of general commercial conditions by banks and trust companies are full of references, as to this particular commodity or that, to retail trade. The market will do this or that in a commodity "if retail trade continues." The markets are made by the buyers, not by the cost of production. When demand slackens in a given raw or intermediate material the price falls. There are exceptions, of course, but one is struck, in most of the reviews, by the emphasis laid upon what the final buyer does or is going to do.

It is the buyers, in general, who have been making markets. Not only have they been making markets

by the volume of their purchases, they have also been making the market by their willingness, if not anxiety, to pay high prices. Everyone has heard tales of the retail merchant who found his trade falling off because his prices were lower than those at other stores, and of the recovery he secured by changing price marks on the goods in his show windows. There must be something in this. It can hardly be a conspiracy on the part of retail dealers to spread a selected story.

One certainly finds it to be the case in the steel market that the buyers have been making the prices. More than three months ago buyers began bidding up prices. It is a process, of course, that can not last indefinitely. Anything that is wrong finds a cure eventually. In the case of the retail buyer prices would go to a level that would exhaust the buyers' purses, for strikes for higher wages to compete with the high cost of living do not go as smoothly as they did. In the case of steel there is the compensating influence that many investors who contemplate new construction jobs will not bid up the market but on the contrary are content to wait.

OBITUARY.

Charles M. Hurst.

After an illness of many months, Charles M. Hurst, President of the wholesale hardware firm of Morehouse, Wells and Company, passed away at his home in Decatur, Illinois, Saturday, June 26, 1920. He was born in Decatur sixty-one years ago and received his education in the schools of his native city. He entered the employ of the old firm of Morehouse and Wells in 1879. In 1892, he was taken into partnership and the name of the concern was changed to Morehouse, Wells and Company. Upon its incorporation, he was elected secretary-treasurer, which position he held until January, 1908, when he was elected president. He served the Company in almost every capacity. He was a retail salesman in the store, was on the road for a time as traveling salesman, was a bookkeeper in the office, and was buyer for the store for many years. Mr. Hurst was prominent in city affairs and worked hard for the success of the Association of Commerce. He was instrumental in bringing many profitable enterprises to Decatur and took a prominent part in the educational activities of the city particularly with reference to Millikan University. He is survived by his widow, Rella Shockley Hurst. He is said to have had more friends in Decatur than any other business man in the city. He was sympathetic, kind, patient, and just toward all.

PRESENTED BY BUREAU OF FOREIGN AND DOMESTIC COMMERCE.

The Bureau of Foreign and Domestic Commerce, through its Special Agents, Consular Officers and Commercial Attachés, is receiving information of opportunities to sell hardware and kindred lines in several foreign countries. Names and locations will be supplied on request to the Bureau in Washington or its District Offices. Such requests should be made on

separate sheets for each opportunity, stating the number as given herewith:

33143.—A metal industries association in India desires to purchase machinery for the manufacture of iron safes, such as locks, door fittings, angle iron, T iron, flat, square, and round bars, steel and wrought-iron plates, and M. S. sheets of various gauges. Payment to be made through bank in India. Reference.

33128.—An American commercial representative is about to establish an office in Mexico and desires to secure an agency for the sale of American goods in that country. References.

33129.—An exporting corporation in the United States having trade connections with the Latin American countries, is about to send a representative to South America and desires to secure the exclusive agency for the sale of farm implements, tractors, hardware, etc. References.

33130.—A commercial agent in Colombia desires to secure the representation of manufactures for the sale of hardware, tools, enameled ware, aluminum ware, tin plates, fencing wire, etc. References.

33132.—A firm of manufacturers' agents in South Africa desires to secure an agency from a manufacturer for the sale of household requisites, glassware, crockery, hardware, enamel ware, and aluminum ware, etc. Reference.

33148.—A commercial agent from Australia is in the United States and desires to secure an agency for the sale of automobiles and motor accessories. References.

33149.—A trading company in Argentina desires to secure the exclusive agency for the sale of automobile accessories, twine and hardware. Quotations by mail or cable c. i. f. Argentine port as requested. References.

33151.—A merchant in Switzerland desires to purchase printers' brushes, weatherproof paints for outside work, and low-priced varnishes. Quotations should be given c. i. f. Antwerp. Correspondence may be in English. Reference.

33154.—A merchant firm in India desires to purchase hardware, belting, brassware, copperware, mill stores, lubricating oils and greases, paints, colors, varnishes, etc. Quotations should be given c. i. f. Indian port. Payment will be made of 45 days' sight draft, documents against acceptance. References.

33159.—A merchant firm in the Straits Settlements desires to purchase hardware, brushware, cutlery, and general merchandise. High-priced goods do not find a ready sale in this market. A complete list of the goods required was forwarded and may be obtained with the reserved information furnished upon request for this opportunity number. References.

33161.—The Chamber of Commerce of a city in Venezuela desires to receive catalogues of all kinds of merchandise, in Spanish, if possible, but catalogues in English can also be used.

33164.—A company in India desires to purchase hardware, paints, oils, metal hooks, etc. References.

33165.—A commercial agent in South Africa desires to secure an agency for the sale of brushes and brooms, cutlery, aluminum ware, electroplate and silver goods, etc. Reference.

33171.—An agency is desired by a firm in France for the sale of any new branch in the building line such as sanitary apparatus, vacuum cleaners, etc. Correspondence may be in English. References.

33173.—A company in Norway desires to secure an agency for the sale of automobile accessories, general hardware, specialties generally included in hardware stock, etc. Quotations should be given c. i. f. Norwegian port. Payment will be made through banks in Norway and New York. References.

33174.—A manufacturing company in Finland desires to purchase or secure an agency for the sale of steel tinplates and blackplates. Quotations should be given c. i. f. Danish ports. Correspondence may be in English.

COMING CONVENTIONS.

Texas Hardware Jobbers' Association, Waco, Texas, July 9 and 10, 1920. R. F. Bell, Secretary-Treasurer, 320 Broadway, New York City.

Mississippi Retail Hardware and Implement Association, Agricultural College, Mississippi, July 13, 14 and 15, 1920. E. R. Gross, Secretary-Treasurer, Agricultural College, Mississippi.

Ohio State Sheet Contractors' Association, Toledo, Ohio, July 20, 21, and 22, 1920. W. J. Kaiser, Secretary, Columbus, Ohio.

Texas Hardware and Implement Association, Adolphus Hotel, Dallas, Texas, January 18, 19, and 20, 1921. A. M. Cox, Secretary, 1808 Main street, Dallas, Texas.

Pacific Northwest Hardware and Implement Association, Seattle, Washington, January 18, 19, 20, and 21, 1921. E. E. Lucas, secretary, Hutton Building, Spokane, Washington.

Missouri Retail Hardware Association, Planters Hotel, St. Louis, Missouri, January 25, 26, and 27, 1921. F. X. Becherer, secretary, 5106 North Broadway, St. Louis, Missouri.

Oregon Retail Hardware and Implement Dealers' Association, Portland, Oregon, January 25, 26, 27, and 28, 1921. E. E. Lucas, secretary, Hutton Building, Spokane, Washington.

Kentucky Hardware and Implement Dealers' Association, Louisville, Kentucky, January 25, 26, 27 and 28, 1921. J. M. Stone, Secretary, Sturgis, Kentucky.

Wisconsin Retail Hardware Association, Milwaukee, Wisconsin, February 2, 3 and 4, 1921. P. J. Jacobs, Secretary, Stevens Point, Wisconsin.

Oklahoma Hardware and Implement Association, Oklahoma City, February 8, 9, and 10, 1921. W. B. Porch, secretary-treasurer, Oklahoma City, Oklahoma.

Iowa Retail Hardware Association, Des Moines, Iowa, February 8, 9, 10, and 11, 1921. A. R. Sale, secretary-treasurer, Mason City, Iowa.

Pennsylvania and Atlantic Seaboard Hardware Association, Incorporated, Convention and Exhibition, Philadelphia Commercial Museum, Philadelphia, February 8, 9, 10, 11, 1921. Sharon E. Jones, Secretary, 1314 Fulton Building, Pittsburgh.

Illinois Retail Hardware Association, Hotel Sherman, Chicago, Illinois, February 15, 16 and 17, 1921. Leon D. Nish, Secretary, Elgin, Illinois.

California Retail Hardware and Implement Association, San Francisco, California, February 15, 16, and 17, 1921. LeRoy Smith, secretary, 112 Market street, San Francisco, California.

Ohio Hardware Association, Deshler Hotel, Columbus, Ohio, February 15, 16, 17, and 18, 1921. James B. Carson, secretary, Dayton, Ohio.

New England Hardware Dealers' Association, Mechanics' Building, Boston, Massachusetts, February 21, 22, and 23, 1921. George A. Fiel, secretary, 10 High street, Boston, Massachusetts.

New York State Retail Hardware Association, Rochester, New York, February 22, 23, 24, and 25, 1921. John B. Foley, Secretary, 607 City Bank Building, Syracuse, New York.

Panhandle Hardware and Implement Association, Amarillo, Texas, May 8, 9, and 10, 1921. Troy Thompson, Secretary, Treasurer, Dalhart, Texas.

Hardware Association of the Carolinas, Charlotte, North Carolina, May 10, 11, 12, and 13, 1921. T. W. Dixon, secretary-treasurer, Charlotte, North Carolina.

RETAIL HARDWARE DOINGS.

California.

Hughes Brothers have sold their dry goods furnishings, hardware, and implement business at Oakdale, to B. Anixter.

Illinois.

The Payson Manufacturing Company, manufacturer of hardware, 2930 West Jackson Boulevard, Chicago, has let contract for a three-story addition, 23x60 feet, to cost \$15,000.

Iowa.

George Schlus and Son have sold their hardware and implement store to W. J. and F. P. Berger, at Mapleton.

Kansas.

Rosenquist Hardware Company has engaged in business at Osage City.

Minnesota.

J. C. Jacobson has sold his hardware business at Benson to Brown Brothers.

E. Nelson and Brothers will open a hardware store at Lincoln.

Montana.

The O'Neil Hardware and Plumbing Company have increased their capital from \$20,000 to \$50,000.

Nebraska.

Lodge Pole Lumber and Grain Company have started a hardware business at Lodge Pole.

Soderstrom and Conroy have been succeeded in their hardware store at Shelton by Ralph Soderstrom.

North Dakota.

Walters Brothers have purchased a hardware store at Cassellton.

Ohio.

The Columbus Hardware and Furniture Company have bought the Valland hardware stock at Columbus.

Oregon.

The Merges Hardware Company has increased its capital from \$5,000 to \$10,000 at Portland.

Wisconsin.

A. S. Galpin retires from the hardware business of A. Galpin's Sons. His two sons, Gerald and Eric, assume the management of the business at Appleton.

Wisconsin.

The Gresham Hardware Company has been incorporated with a capital of \$20,000 at Gresham.

William Kingston has sold his interest in the hardware business at Muckwonago to J. F. Desmond and Harry Kingston.

AUTOMOTIVE ACCESSORIES SOLD BY HARDWARE DEALERS

The Providence Auto Tool Company has been incorporated at Providence, Rhode Island, with \$100,000 capital by L. A. Benoit, E. Bresse and George Wright.

The R. and L. Manufacturing Company has been incorporated at Brockton, Massachusetts, to make auto tools and devices with a capital of \$50,000, by R. H. Randall, Wollaston, Massachusetts, and Albert Leighton and Ralph C. Gerrish, Worcester, Massachusetts.

The Worth Accessories Company has been incorporated at Boston, Massachusetts, to make automobile accessories with \$100,000 capital, by Carl J. Wennberg, Quincy, Massachusetts; Jacob Worth, Dorchester, Massachusetts, and Manfred E. Miller, Chelsea, Massachusetts.

EXPLAINS IMPORTANCE OF BEARINGS.

All automobile engines of today with one or two exceptions use plain bearings for supporting the crankshaft and for the connecting rods. These plain bearings are usually composed of a bronze shell with a babbitt composition inner lining.

Practically all engine bearings are in two parts and when the two are fitted together they form a cylinder. Between each half are placed shims of either the solid or laminated type. These shims are provided so that the bearing may be properly fitted to the shaft.

It is quite easy to see that the hardened steel shaft rubbing against the soft babbitt metal would generate so much heat that the babbitt would soon melt unless the surfaces were copiously lubricated. When lubrication fails and the bearing metal melts we say that the bearing has burned out. We also say that a bearing knocks, and this is the result either of natural wear over a long period or of insufficient lubrication for a short period.

Both cause a wearing away of the babbitt, with the result that it does not fit closely to the shaft. Every time the shaft revolves the play or looseness in the bearing causes a knock to be heard. It is when a bearing knocks that it is required to be refitted, commonly called "taking up" or "adjusting."

There are quite a number of owners who are able to do the work of refitting a bearing, but to do a really good job requires experience far beyond that of the average motorist. The mere removal of looseness by filing the shims or removing a lamination is not sufficient. This removes the play, to be sure, by simply tightening the bearing, but it does not cause the bearing to be properly fitted.

When a bearing is simply tightened against a shaft, as likely as not it will come loose again in a very short time, even though it is well lubricated. An owner, in taking up bearings, may make one very tight, an-

other loose, and the rest of them perhaps adjusted properly.

IS LOGICAL ACCESSORIES DEALER.

The hardware dealer has been for years a dealer in automobile accessories, perhaps without realizing it. Take the tool line, for instance, the hammers, wrenches, screw drivers, files, pliers and so forth—all are as much automobile accessories as anything else. Then take the flashlights and dry batteries that he always has carried. These and many other articles are the nucleus of an accessory stock and are already in the store. Branching into handling automobile supplies is simply a matter of handling standard goods—lines that are in demand and in good standing as profit makers.

TELLS HOW TO LUBRICATE SPRINGS.

In lubricating automobile springs the greatest trouble is found in keeping the lubricant from being squeezed out under pressure. A compound that obviates this is found in graphite and beeswax mixed to a paste and spread upon each leaf. To apply the lubricant the spring must be taken apart.

LET US OPPOSE CLASS DISTINCTIONS.

Americans in the past have been prone to talk altogether too much about the classes within our boundaries, capital and labor, the farmer, the business man, the clerk, the educator, the man in government and all the other elements of our population. What we should talk about is Americans—not classes but one great people.

There are countries in which the distinction between the classes is fixed and definite. In America it is our boast that such distinctions are neither definite nor fixed. The environments in which the individual works and lives change so frequently and so rapidly that the stamp of class identification has become exceedingly indistinct. What an interesting task, for instance, to classify the man who owns a farm and operates it, whose children have university educations and possibly travel abroad, and who drives to a meeting of the bank board of directors, of which he is a member, in a Pierce Arrow or a Packard car! Yet this type of farmer, and many other types still more complex as regards functions, are found in all parts of this country, and are real farmers, too.

Salesmen and dealers should be so imbued with the spirit and activities of the house that they will not lose their nerve or confidence under any competitive stress.—J. George Frederick.

ADVERTISING CRITICISM AND COMMENT

Helpful Hints for the Advertisement Writer

Many of the most absorbing Christmas stories are written when the mercury in the thermometer is bubbling around the 90 mark. The reason is, probably, that the writers' imaginations are stimulated by the desire for snow and icy breezes. It is not amiss, therefore, during these dog days to reprint a Christmas advertisement. Merchants who study their schedules a year in advance may get some helpful hints from the advertisement of Lane and Evans, which appeared in the *Milan Republican*, Milan, Missouri. The arguments in behalf of the pipeless Caloric furnace make interesting reading for any householder.

The Heartiest Greetings of the Season to All
Our Friends and Patrons

GIVE THE WHOLE FAMILY CALORIC HAPPINESS THIS CHRISTMAS

A Caloric Pipeless Furnace will transform your house into a home—will give you true time warmth in every room, upstairs and down—this Christmas—this winter—all through the year to come. The cost is less than moves. The saving in time, labor and fuel is immeasurable.

This Christmas time, while you are thinking of ways to increase happiness, think of the CALORIC as the spirit of General Warmth that will bring happiness and Good-Cheer into your home.

Think of the CALORIC as the spirit of Comfort that will make your home brighter and more cheerful.

Think of the CALORIC as CONVENIENCE that will regulate temperature in your home as easily as pressing an electric button—that will banish the dirt and drudgery of old style heating methods.

Think of the CALORIC as ECONOMY that will eliminate one third to one-half your fuel bill and save money for things worth while.

In Over 76,000 Homes, the
PIPELESS CALORIC FURNACE
Is Circulating Happiness this Christmas

Decide now to make this CALORIC Christmas in your home and perpetuate the good-cheer of the Christmas season throughout the year and years to come.

We will install the CALORIC on a money-back guarantee of seventy degrees warmth in the coldest weather. This guarantee is backed by the Monitor Stove Company of Cincinnati, Ohio, a million dollar company that has been making quality heating appliances for 101 years.

To this guarantee of the manufacturer we add our personal guarantee of your complete satisfaction.

The CALORIC is the original patented system of heating buildings, by circulating warm air. Heats old homes or new, of sixteen rooms or less, through one register. Order NOW and installation will be made in a few days—probably in a day's time, and without interfering with your present heating.

LANE & EVANS
MILAN, MISSOURI

Indeed, they are just as appropriate in midsummer as in the depth of winter. Householders who have made up their minds to replace heating stoves with some better system of heating are just as likely to pay attention to the reasoning of this advertisement in the summer or fall as they would be in the winter. An illustration of the Caloric pipeless furnace could be used to advantage in increasing the persuasiveness of this advertisement.

* * *

Tools to keep things in repair have an unflinching appeal to a large percentage of the people. It is, therefore, an exceptionally clever title which Koller Brothers use in their advertisement in the *Cleveland Press*, Cleveland, Ohio, namely, "Our Tools Help to

Keep Things in Repair." A sufficient variety of articles is presented to convey the suggestion of ample supplies of tools for the purpose set forth in the headlines of the advertisement. Illustrations arrest atten-

Remember Where You Save

OUR TOOLS HELP TO KEEP THINGS IN REPAIR



Best cobbler's outfit for home shoe repair, very special

89c



Electric flush base receptacle and brass plate, complete

49c



COBBLER
Automobile Wrench

Adjustable automobile or machinist wrenches, best drop forged steel

29c



All "Columbia" No. 5 scrub plane of kiln dried WHITE hardwood, for all kinds of carpenter work.

\$1.89

8-in. Adjustable Wrench .. **84c**
Chain Pull Sockets ... **57c**
2-Cell Flashlight .. **89c**
Meyer's Sewing Awls **45c**

Gillette Blades Per Doz. **83c**
Bibbs, washers, heaters and parts for heaters and everything for plumbing repairs.

KOLLER BROS.
724 PROSPECT
Opposite Hippodrome

tion particularly in connection with an idea of repair. Typographically, there is no fault to find with the layout. Worthy of special mention is the feature of this advertisement stating prices in bold figures.

* * *

Human beings think in pictures. Therefore, advertisements always derive advantage from the use of illustrations, as in the case of the advertisement of the Gas and Combination Ranges of the Cleveland Stove and Repair Company, shown in the accompanying illustration and reproduced from the *Cleveland Plain Dealer*, Cleveland, Ohio. As far as size is con-

Gas and Combination Ranges

A call at our store will convince you that we CAN SAVE YOU **10% to 25%**

We carry New Process, Champion, Dangler, Domestic and Grand Ranges—60 styles and sizes to select from. Old stoves taken in exchange. Delivery anywhere. Buy now for immediate or future delivery.

OPEN SATURDAY EVENINGS
CLEVELAND STOVE & REPAIR CO.
5312 EUCLID AVE.



cerned, it is a small advertisement. The picture of the woman using the combination range suggests its usefulness and desirability. The average reader is likely to take the trouble to glance over the text of the advertisement because it is brief as well as adequately illustrated. A statement of minimum and maximum prices would, no doubt, strengthen the selling appeal of this advertisement.

HEATING AND VENTILATING

DISCUSSES NEW THEORIES OF THE RELATION OF PHYSIOLOGY TO VENTILATION.

(Concluded from last week.)

There is a definite relation between desirable wet bulb temperature and the degree of movement.

When we consider the condition of a human body in relation to the moisture around it, it will be appreciated how desirable it is that there should be air movement, for the vapor which is given off from a human body only moves very slowly upwards, and always tends to cling to the body itself. Thus in perfectly stationary air a perspiring man is completely enveloped, as it were, in his own vapor. He is having a vapor bath in vapor produced by his own body. If there is a slight air movement, be it ever so slight, the vapor has a much improved chance of getting away. Further, moist air is lighter than dry air, and will naturally float to the ceiling.

Since, therefore, it is desirable to keep down the proportion of vapor in the air by interchange, where a large number of persons are gathered together, it points strongly in the direction of extracting air from the top of the room, and not from the bottom, because the uppermost air in a room will have the most vapor. The argument is often heard that as CO_2 is heavier than air, it will naturally sink, and that therefore bottom extraction gratings, are preferable to top. This argument is totally fallacious. I have myself, analyzed the air in dozens of rooms at the ceiling and at the floor. I have never on one occasion found more CO_2 at the floor level than at the ceiling level, except where CO_2 has been introduced from a cylinder of the liquified gas. The fact is that the heat and moisture which always accompany the CO_2 emitted in the breath at once carry the gas to the ceiling. But this maxim must be modified from another point of view. The subject is so complicated that hard and fast rules can not be laid down.

It will be understood from what has been said that it is very unsatisfactory that the head of a person should be kept hotter than his feet. We must, so far as is possible, equalize the temperature at head level and at foot level; indeed, where it is possible it is even desirable that the feet should be warmer than the head.

From this it is evident how desirable it is that all the heating surface in the room should be at as low a level as possible. Pipes round a room near the floor are preferable to radiators on this account. If it is possible to keep the floor itself slightly warm, so much the better. There are, of course, great constructional difficulties in doing this.

Further, since the hotter the radiator, as I have proved experimentally, the greater is the difference in

temperature between the ceiling and the floor, therefore, it is very desirable to have as much heating surface in a room as possible and to work it at as low a temperature as may be. The higher the temperature of the radiator and the colder the walls and the windows, the worse is the result from a point of view of temperature difference.

Again, since in very cold weather a layer of cold air is always found on the floor, therefore a portion of the extract should deal with the floor air so as to avoid anything in the nature of the well of cold air of which I have spoken. This well of cold air is really the bugbear of the heating engineer, though he is often totally unconscious of the fact, and if the whole of the extraction is taken from the top, and if there are cold surfaces surrounding the room, which cool the air, this cold air will at once sink to the floor, and must either be removed or warmed. It may be partly removed by extraction, or better by keeping the heating surface in the room at as low a level as possible, and better still by stirring up the air in the room, so that it gets mixed with the due proportion of warm air.

There are only very few means of warming the floor of a building, and these are often very difficult to carry out. In cases where a large floor is made of reinforced concrete—a form of construction which is becoming more and more common—it is frequently useful to suspend steam pipes under the structure on the floor below, where this is possible.

Economy dictates that the heat from these pipes should be prevented from escaping otherwise than through the floor. Where a chamber, therefore, can be provided under such a floor and liberally provided with steam or hot water pipes, this is unquestionably a very valuable aid to the ventilation, although at first sight it would appear to apply to the heating only.

I need not point out to this assembly the great expense involved in an expedient of this kind.

For small rooms we can have the floor warmed by hot pipes fixed in the thickness of the floor itself. Where the floors are of wood this expedient commonly has deplorable results in causing shrinkage and warping of the boards. These results are sometimes very undesirable.

In a case which came under my notice recently a return pipe at a moderately low temperature fixed under a parquet floor caused cracks to develop, which were very ugly and damaging to the building.

The only general agency whereby a floor can be warmed in a small room is radiation either from an open fire or gas fire, or some similar means.

In the laboratory I have devised electrical means for warming a floor by projecting a powerful beam of radiant heat from above, taking care that all the convected heat given off from the electrical heaters

employed was carried away in a chimney flue. This device, which is now fixed in my laboratory, is, I believe, the only known method of heating a room by pure radiant heat, and it is enormously expensive, so expensive that nobody but a very wealthy person could contemplate using it, but the effect of the heat is wholly delightful.

It is, as far as my experience goes, by far the best method of heating I know of. The room heated by this means feels warm and fresher than any other means of artificial heat than I have ever seen. The reason is that while there is sufficient radiant heat to satisfy the feeling of bodily comfort, the air is kept cool. The effect must be experienced to be appreciated.

One other such means of warming the floor is by what is called an electric carpet, in which electrical conductors are interwoven with a non-conducting carpet, and keep the carpet itself warm. This is a very delightful idea in itself, but it raises doubts as to continued insulation, and it is apt, one would think, to be somewhat dangerous from the fire point of view. It is further very expensive both in first cost and in upkeep.

Short of actually warming the floor we have open to us means for bringing the warm air of the upper strata into contact with the floor. This might conceivably be done by a process of circulating the air between the floor and the upper levels, and I do not doubt some satisfactory method of circulating in this sense could be devised if any client were willing to spend the money.

I have produced the effect in the laboratory by means of a device which certainly would not be tolerated in a private sitting room.

I have also designed systems in connection with my private practice in the effort to dissipate the feeling of discomfort whereby large volumes of air are circulated between the floor and the upper part of the room. These devices always involve the use of electrical motors in or about the room, and the slight noise produced by the working of these is very annoying to a person who naturally wishes for quiet in a sitting room, and once such a noise begins to get on the nerves of the person concerned the effect grows rapidly and it soon becomes intolerable.

This question of noise is also one of the principal drawbacks to the modern gasfire. The slight hiss which some of these appliances make is to a sensitive person almost intolerable, and its presence militates greatly against the development of the gas fire as a means for heating.

It will be seen that the problems confronting the heating engineer are very numerous, and very awkward to deal with, and the more perfect we try to make these appliances the more difficulties we are apt to get into.

The principal difficulty is that of cost. Clients are very apt to select the cheaper scheme irrespective of its features. This attitude can not be wondered at, since the importance of certain features such as I have described, only becomes painfully apparent after the completion of the work, at a period when it can not be altered without further expense.

If this expense had been proposed in the first place the entire scheme would have been rejected on the ground of expense. This is one of the difficulties as well known to the audience as to myself. The subject is one of the most profound interest to those who are endeavoring to treat it on the basis of science rather than rule-of-thumb. It is an altogether more scientific subject than the popular conception of it.

The heating engineer, whatever his status, is not infrequently designated as "the man who has come about the pipes," and is regarded as a sort of superior or inferior mechanic. I believe, however, that the next ten or twenty years will make an immense alteration in the common attitude towards these difficult and interesting problems.

I have endeavored in my private practice to overcome this tendency to stratification of the air in layers of different temperatures by different arrangements of the ventilation. The problem of so arranging ventilating gratings as to avoid all possible objections is an extremely difficult one. The necessity for keeping the air in a building moving, and at the same time to avoid any reasonable complaint of draught is almost hopeless of solution, owing to the different ideas on the subject of draughts which prevail among the general public.

The smallest movement of air will make some persons complain of draught, whereas anything resembling stillness of the air will make other persons complain of stuffiness.

Not very long ago I was engaged on club premises, and I ascertained from the Committee that one of the members who was loudest in his complaints had tested the entire premises by the well-known method of wetting the back of his finger to see if he could detect any movement of the air. Any result of this interesting experiment was communicated to the Committee in the form of a complaint of draughts.

On the other hand, we have the fresh air fiend, who, unless there is a positive gale, will complain of stuffiness. One such individual with whom I was concerned some little time ago made some such complaint, and I took down to his premises a whole battery of instruments in the endeavor to get some measurements. When it was instrumentally proved that there was no ground for the complaint, he said, "It is a great deal better this morning than it usually is." Since then I have repeated the experiment on three occasions, and each time it has for some miraculous reason been one of the favorable occasions when there is no ground for complaint.

The truth is there are numerous individuals, almost all of whom are in my experience idle and wealthy persons, who would complain if the conditions were such as we hope to experience in the Kingdom of Heaven, and for such people there is no remedy.

Our position is that unless we can get these conditions instrumentally defined so that we can recognize them irrespective of subjective sensations real or imaginary, we can not make much progress. In the effort to do so I have spent a considerable part of the last ten years. Other people, especially in America, have been working on the same lines. They have got

so far as to lay down exact conditions which a good system of ventilation ought to satisfy in the American climate.

Even though these conditions are arbitrary in character, and even though they are incorrect, it is certainly a step forward to have them down on paper, right or wrong. If they are written down and they are wrong, the chances are you may be able to rectify the specification, but until they are written down they are in a fluid state, in which little progress is to be hoped for.

The American specifications deal with air quantity, CO₂, impurity, temperature, humidity, dust bacteria, and air velocity, and if the air is correct in these particulars the ventilation is said to be satisfactory.

To these, according to my own experience, I would add one or two additional ones, notably the difference in calorimetric condition between head level and foot level. I would very much like also, but for its instrumental difficulty, to add the radiant temperature and the true air temperature. These latter functions are, however, so difficult to determine, even in the laboratory, that it would be hopeless to add them to a practical specification.

One of the most efficient practical methods of securing ventilation in a small room is, of course, as is well known, the use of an open fire in a chimney. Very little has been known up to within the past two or three years of the exact effect of an open fire burning in a room, but the problem has been very closely investigated at the Manchester School of Technology by Dr. Margaret Fishenden, who has been carrying out investigations for the Air Pollution Board in Manchester, and in conjunction with the Department of Scientific and Industrial Research, and with my Department.

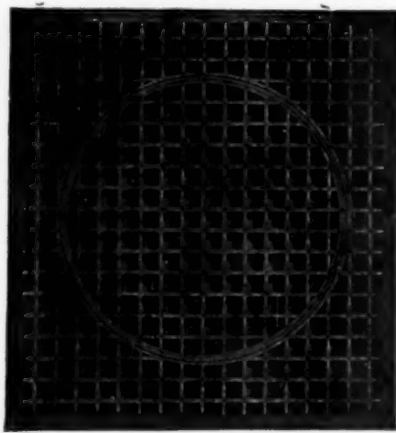
As a consequence of these investigations the open fire has been shown to be a much more efficient device than was previously believed. Its effects are not confined to the room in which it is used, but extend to the whole house by generally warming the structure. Its radiant efficiency has been shown to be in the neighborhood of 25 per cent, and with such fuels as coke and semi-coke this is increased to something like 30 or 32 per cent, but it is in regard to the ventilation that it is chiefly interesting to us.

As regards ventilation it has been shown that an open fire under a flue sometimes, or usually, increases the rate of ventilation up to perhaps 10 complete interchanges in a moderate size room per hour, and further produces in all parts of the room that movement of air which Dr. Hill's investigations have shown to be necessary.

It produces, however, some very curious effects such as the following. For many hours after the first lighting of a coal fire the coldness of the remote ends of the room is considerably increased. Far from heating the room at the far end it actually cools it. A suitably placed fire is very efficient for warming the floor and the furniture in the room as well as the room itself. It does not in practice heat the air except as a secondary effect. The subject of the open fire can not be dealt with except at great length, and I am reluctantly compelled to omit further references to it.

GRATINGS RESIST HEAT AND COLD.

Pipeless warm air heater gratings must be stronger than ordinary gratings. In the first place, the passage of both cold and warm air through the same piece



Duplex Grating, Made by the Tuttle and Bailey Manufacturing Company, New York City.

of metal subjects it to great strain. In the second place, usually being placed in the center of the room, the pipeless warm air heater grating is continually being walked over. The Duplex Grating, illustrated herewith, made by the Tuttle and Bailey Manufacturing Company, New York City, is manufactured to

meet both these sources of wear and strain. Merely to withstand a force is not desirable of a serviceable product. It must be proportioned to do some particular function. The Duplex Grating is formed adequately to supply cold air to the pipeless warm air heater over which it is installed and to conduct the warmed air into the rooms of the house. The cold and warm air spaces are accurately proportioned. Duplex Gratings can be firmly fastened to the pipeless warm air heater. No amount of shuffling of feet over it will release its connections. The metal used in the manufacture of these gratings is of a highly strong kind. The grills are manufactured with care and are equally formed. Also, Duplex Gratings are neat in design. They are attractively finished. For details concerning the Tuttle and Bailey line of registers, ventilators, grills and screens write to the Tuttle and Bailey Manufacturing Company, New York City.

ACCIDENTS USUALLY CAN BE AVOIDED.

Accidents do not "happen," they are always caused; caused by a lack of thought for a few minutes necessary to avoid them; long hours, perhaps months, of suffering, or years of regret can be avoided, says a writer in *Scouting*.

Are the matches and the fire in the kitchen stove where the little one can play with them?

Are a few nails needed to repair the hand rail or steps of the cellar stairs?

Are there pieces of old wood lying around with nails sticking up which may be stepped on?

Are the children playing in the roadways where automobiles, wagons and trolley cars must run?

Do you know of some boys who steal rides on railroad freight cars, automobiles or wagons, or some people who use the railroad tracks as a short cut?

Do you wait until the car stops before getting on or off, facing front when getting off?

The right hand is the right hand for the bundle when you are leaving the car.

PRACTICAL HELPS FOR THE TINSMITH

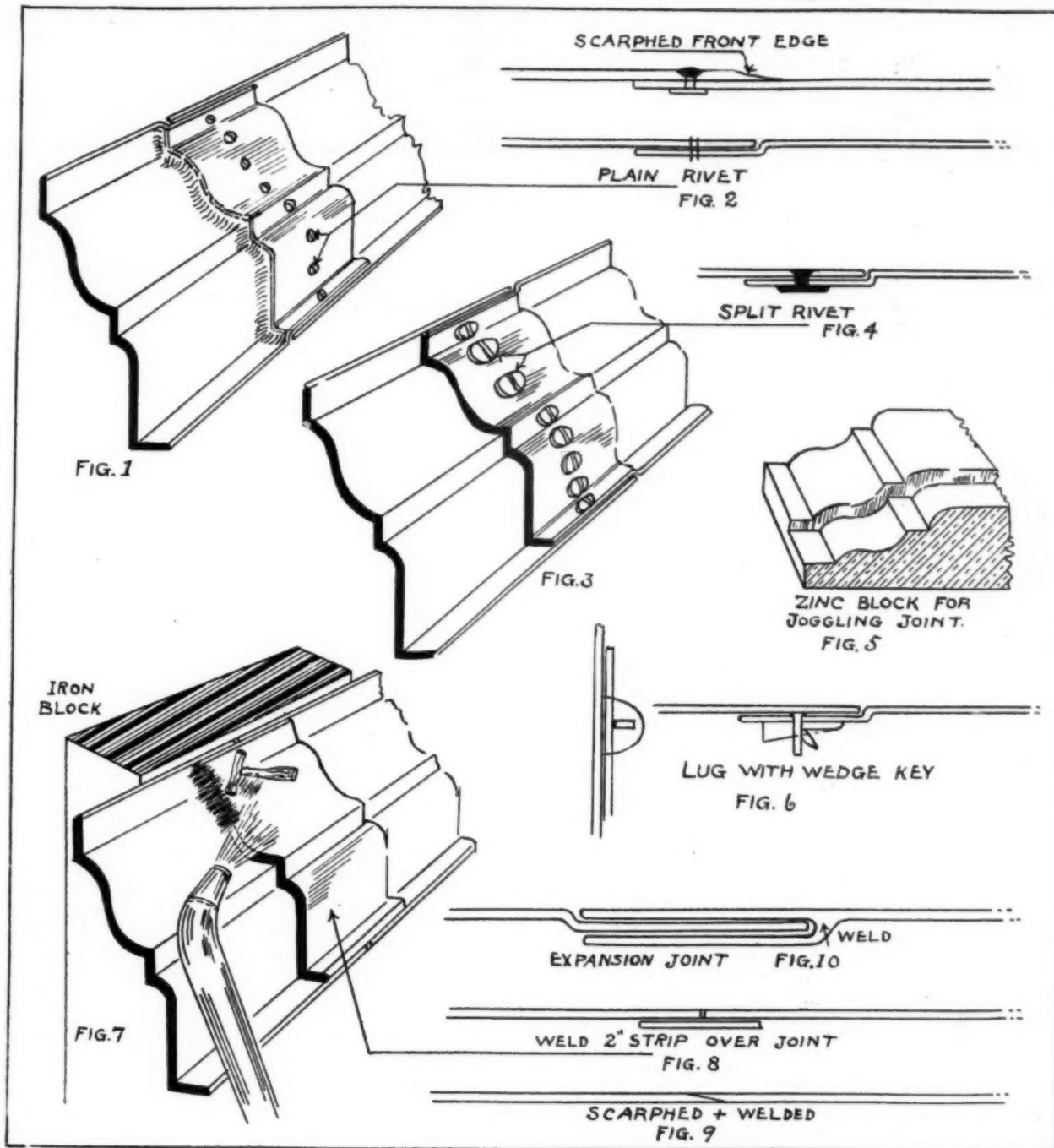
ALUMINUM CORNICES.

By O. W. KOTHE.

One of the greatest opportunities before the trade is aluminum cornices. An architect of far reaching

could be painted. He also said that the average shop is not equipped to produce cornices; that it really requires a power brake in order to shape the metal to exact detail.

When asked concerning the relative merits of stone



Aluminum Cornices.

ability told me some time ago "that if aluminum cornices could be soldered like other metals, secure and smooth, and suitable expansion could be provided," he would specify it in preference to all other materials. He added further that galvanized iron does not last long enough to put it up, and copper can not be painted. Copper would be specified more if it

and terra cotta, he said that terra cotta was comparatively new in this country and what has been put up stands the weather splendidly. When their great weight was mentioned, the answer came, that it was very simple to extend an angle iron to support the projections. This our trade has often observed, and it is surprising to note the amount of superstructure

necessary to support a large cornice of such heavy materials. Yet architects do not mind the cost of it. It is not alone the added cost of material, but also of workmanship, and the increased weight must be provided for throughout the whole building.

Yet sheet metal men are so bent on doing this important work still more cheaply. To listen to the great rank and file, each one has a recipe for figuring the cost, getting out and erecting the job so much cheaper than any one else can do it. And mind you, there is always some one who can figure still lower. Of course sound business men fail to see how they can do it; but it is being done every day. The trade doesn't care so much about the competitive prices so much as the amount the job must suffer.

If the high quality of workmanship could be maintained, the trade would still prosper, even though many shops would go bankrupt. This would be a blessing in disguise because then only those qualified to handle the job would consider it; both employer and journeymen. All the rest would hold their hands off.

Now in the near future when aluminum cornices will be manufactured, a great step forward will be made by the trade, because only those who are equipped to handle it will get the contracts. The architect mentioned that this material is very suitable, because it is of light weight, is durable and can be painted, and is much cheaper than the standard materials of today. So the writer has prepared a few sketches on the most likely methods of working. It may be that some of these will not work out in practice, and if not a better method will no doubt suggest itself.

From the nature of aluminum it can be worked up in flat sheets by power presses, or by draw presses. Some improvements would have to be made owing to the softness of the metal, but there is nothing impossible in this country. Owing to the thickness of the metal, and to make sharp edges and exact detail required, hand brakes would not be suitable at all. Architects often mention the inability of some shops to produce moldings to suit their carefully worked out details, and nothing disappoints him more than to see his ornamental designs distorted or even changed out of harmony to the design as a whole.

Cross seams could be made in numerous ways as riveting the joint Figure 1 and scarphing the outside edge as above Figure 2. This long scarph is not always suitable especially on direct exposed work. Therefore the joggled joint as at Figure 2 can be used. Special split rivets as in Figures 3 and 4 may be used in inconvenient places. These rivets are very much like the sheet metal screw—to be used only where a solid rivet or bolt can not be placed conveniently. Split rivets when used for the entire length of the cross seam will in time permit the joint to loosen, because of the soft metal and flexibility of the rivet ends.

The joggled offset on each cross seam would be difficult to make by hand unless the workman was especially skilled in hammered work. Power press work will maintain the uniformity of the metal, as compressing and stretching it in places unduly. Zinc

block dies would be made for each new design and made in workable sections to suit the shaped up moldings. A lug and wedge key could also be used for securing the cross seam as at Figure 6. After driving the wedge key in firmly, it would be notched, and the cut end turned back. The frontal seam would be soldered so the crease would be filled and smooth and solid. Just what can be done for such an aluminum solder I do not know. Many firms throughout the country claim excellent solders and set forth great claims for it. But it is doubtful if it will work as we require it on a cornice job.

However, the welding of aluminum seems to be the most popular, but this requires specially trained workmen. At Figures 7-8-9 we show this treated. The best practice would be to butt strap all cross seams and weld them as in Fig. 8. An oxy-acetylene torch is used to heat the metal until little globular bubbles appear, and then with a suitable hammer the joint is welded, having the iron block held firmly in place. Some workmen prefer to weld the metal by the fusion method. The scarph weld in Figure 9 should not be attempted unless the workman is exceptionally skilled with the torch. The edges should be scraped clean before welding.

Other methods can also be worked in as standing seams for trial results. On long stretches of cornices some means should be provided for the expansion and contraction as in Figure 10. The splice should be quite long, and if possible a rivet placed near the ends that pass through longitudinal slots through the center edge to enable the metal to give and take and not deform. This is the great trouble with cast iron cornices, as they soon crack due to expansion and contraction, mostly caused by leaks and frost.

No doubt multitudes of practical tradesmen can offer other suggestions that would help open up a new line of work for the trade. And with this I must leave it to the trade for further discussion and development.

ISSUES A NEW FOLDER DESCRIBING BUZZER SOLDERING FURNACES.

Bearing the date of June, 1920, the new folder, describing Buzzer Automatic Blast Gas Soldering Furnaces and similar mechanisms manufactured by Charles A. Hones, Incorporated, Brooklyn, New York, ought to be in the possession of every sheet metal worker. These Buzzer Automatic Blast Gas Soldering Furnaces, Burners, and Torches are made without a blower. Their adjustment and construction are simple and durable. Being equipped with pilot light, the flame can be turned off when work is being assembled or when furnace is not in actual use. Thus, a saving in gas is effected and the mechanism is always ready. The new folder contains brief descriptions of special appliances, torches, burners, soft metal furnaces, soldering furnaces, and rectangular tinning baths, all of which are constructed on the principle of the Buzzer Automatic Blast. Those interested in such a booklet are advised to write for a copy of it to Charles A. Hones, Incorporated, 91 Noble Street, Brooklyn, New York.

OPENS A TIN SHOP IN CONNECTION WITH PLUMBING AND HEATING.

The firm of Ross and Cooper has been formed in Fairmount, North Dakota, for the purpose of conducting a heating and plumbing business with a tin shop in connection. Both members of the firm are competent mechanics and thoroughly skilled in the practical side of the business. Mr. Ross has had ten years' experience in the merchandizing side of the trade and is a strong believer in advertising. He declares that the windows of a tin shop or heating and plumbing store are not merely for the purpose of admitting light. They can be made sources of great profit through intelligent and judicious window displays. Both he and his partner take special pains to arrange attractive window displays and in this way, they have already gained the attention of prospective customers to their new establishment.

MICHIGAN SHEET METAL CONTRACTORS PLAN A TWO DAYS' OUTING.

Energetic preparations are under way for the Fifth Annual Outing of the Michigan Sheet Metal Contractors' Association, which is to be held Friday and Saturday, July 16 and 17, 1920, in Battle Creek, Michigan. The Battle Creek Local of the Association is determined to make the outing the most memorable in the history of the state organization. For that purpose members of the Battle Creek Local have been hard at work for the past three months, making plans for the occasion. Members of the Association throughout the state are heartily cooperating with the Battle Creek Local and it is the confident prediction of the state secretary, Frank E. Ederle, that it will be the most successful affair of its kind ever pulled off in Michigan. The program of the outing is as follows:

Program of the Fifth Annual Outing of the Michigan Sheet Metal Contractors, to Be Held at Battle Creek, Michigan, Friday and Saturday, July 16 and 17, 1920.
Friday, July 16, 1920.

Registration and Reception at the Post Tavern.

1:30 p. m. Sight seeing trip starting promptly at this hour from the Post Tavern, visiting Camp Custer, Battle Creek Sanitarium and the Kellogg Corn Flake Co. Through the courtesy of Mr. J. L. Kellogg special guides will be provided to escort the guests through the entire plant.

6:45 p. m. Banquet at the Post Tavern. Dancing in Bridge Room. Cards in the Blue Room.

Saturday, July 17, 1920.

9:00 a. m. Ball game at league grounds, Goguac lake. Employees of Kalamazoo vs. employees of Battle Creek. Boating, bathing and other entertainment at the lake will complete the morning program.

12:00 m. Lunch furnished by the Battle Creek Association.

1:30 p. m. Vaudeville entertainment.

2:30 p. m. General sports.

3:30 p. m. Ball game. A team selected from Lansing, Saginaw and Flint, with Albert Klopff as captain, will play a team from Battle Creek, Kalamazoo and Jackson, with James Shouldice as captain. This game to decide the ownership of the loving cup now held by Saginaw. Only active members residing in these cities will be allowed to participate in this game.

General Information.

Visitors please register and receive badges and credentials, which will entitle you to free automobile storage, banquet tickets, admission to Liberty Park, and all concessions at the lake.

All events will start promptly at the hours scheduled. Please be on time.

Kindly fill out and return card for hotel reservation.

Committees.

Wm. Lusk, General Chairman.

Banquet.

Mr. and Mrs. Wm. Lusk

Entertainment.

Mr. and Mrs. C. Jensen.

Mr. and Mrs. F. E. Ederle.

Mr. and Mrs. Jas. Shouldice.

Reception.

Mr. and Mrs. Geo. Lowder.

Mr. and Mrs. Guy Fitzgerald.

Mr. and Mrs. John Darlington.

Mr. and Mrs. Fred Ruele.

Mr. and Mrs. Frank Walters.

Finance.

M. L. Jones.

John Darlington.

Hotel Reservations.

L. Parrish.

C. H. Ederle.

Lon Shouldice.

TORCH HAS DOUBLE JET BURNERS.

The Double Jet Burners on the Number 92 Double Jet Gasolene Torch, shown in the accompanying illustration, manufactured by The



Number 92 Double Jet Gasolene Torch, Made by The Turner Brass Works, Sycamore, Illinois.

Turner Brass Works, Sycamore, Illinois, are said to produce an intense flame. In construction this burner differs radically from others, declare the manufacturers. The adjustments are simple and can be easily regulated. The tank is of heavy-gage brass. The burner is made of Turner bronze burner metal. For the purpose of

convenience, the filler plug is at the bottom of the tank. The pump is in the handle of the torch and the air valve is located at the base of the pump barrel. These arrangements are made so that the operator of this torch can manipulate any part with the greatest ease. Number 92 Double Jet Gasolene Torch is especially recommended by the manufacturers for all ordinary work for which a common blow torch is used and most particularly for light brazing, annealing, brazing on rubber tires, and paint burning. Due to the high quality of brass employed in the making of this torch it will last an uncommonly long time. Also, it is said that the Number 92 Double Jet Gasolene Torch consumes comparatively little fuel in proportion to the amount of heat it produces and the work that can be done with it. Catalogue Number 4 of The Turner Brass Works, Sycamore, Illinois, which can be procured upon inquiry, contains descriptions of the many torches, furnaces, brazers, and blow pipes manufactured by this company.

CAN BE USED ON EITHER PLAIN OR CORRUGATED PIPE.

What is said to be the only single cut-off made to fit corrugated and plain pipe, and which can be used without extra pipe or elbows, is illustrated herewith, manufactured by The Sullivan Geiger Company, 501-509 Madison Avenue, Indianapolis, Indiana. The "Centennial" Rain-water Cut-off is made of durable

sheet metal. The cut-off which can be seen in the illustration is of simple structure and can be easily manipulated. Being able to fit both plain and corrugated pipe, this rain-water cut-off is widely applicable. Very little adjustment is necessary after it is once installed. It will long resist rust and corrosion. The part which directs the flow of the water is securely

"Centennial" Rain-Water Cut-off, Made by The Sullivan Geiger Company, Indianapolis, Indiana.

embodied in the "Centennial" Rain-water Cut-off and will not break down under long use and wear. The workmanship entering into the manufacture of this product is of a skilled variety. Wherefore, each "Centennial" Rain-water Cut-off purchased is dependable as the entire line of these articles is uniform in all details of construction. Because of its strength and durability, the "Centennial" Rain-water Cut-off is cheap. It will give extensive service. When once attached no adjustments are necessary. Leading jobbers throughout the country handle the "Centennial" Rain-water Cut-off. They are manufactured only by The Sullivan Geiger Company, 501-509 Madison Avenue, Indianapolis, Indiana. For information concerning price, complete description or other details touching upon this product, write to the manufacturers.

PRODUCES EFFICIENT VENTILATOR.

Study the accompanying illustration. The construction of the Earle's Improved Revolving Ventilator,



Earle's Improved Revolving Ventilator, Made by the Berger Brothers Company, Philadelphia, Pennsylvania.

manufactured by the Berger Brothers Company, Philadelphia, Pennsylvania, has advantages worthy the careful consideration of sheet metal contractors and others desiring an efficient ventilator, declare the manufacturers. The working part shown in the illustration runs on a self-lubricating bearing, which, according to the makers, is not affected by heat or cold. Because of its self-lubricating feature it never needs to be oiled or greased. Also, the fan revolves noiselessly. Always, state the makers, there is an upward current of air which prevents downward drafts. The material used is of excellent grade. Catalogue, prices, etc., on these ventilators, also information concerning an extensive line of tinners' and roofers' supplies can be obtained from the Berger Brothers Company, 229-231 Arch Street, Philadelphia, Pennsylvania.

See that you get your cost or more out of the by-products of the store, empty boxes, barrels, waste paper, etc.

NOTES AND QUERIES.

Gas Logs.

From N. M. Truxell, 3807 Sixth Avenue, Des Moines, Iowa.

Will you please inform me who manufactures gas logs?

Ans.—Backus Heater and Foundry Company, Incorporated, 63 Canal Street, Boston, Massachusetts; Stover Manufacturing and Engine Company, Freeport, Illinois; Wadsworth-Adelson Browning Company, 2250 Euclid Avenue, Cleveland, Ohio.

Kerosene Hot Water Heater.

From A. E. Detwiler, 4012 Cottage Grove Avenue, Chicago, Illinois.

Can you tell me who makes a kerosene hot water heater for a boiler?

Ans.—Holyoke Heater Company, Holyoke, Massachusetts.

Furnace Casing Rings.

From Associated Engineering Corporation, 902 Spalding Building, Portland, Oregon.

We would like to know the names of manufacturers of furnace casing rings.

Ans.—Walworth Run Foundry Company, 2488 West 27th Street, Cleveland, Ohio; XXth Century Heating and Ventilating Company, Akron, Ohio; Henry Furnace and Foundry Company, Cleveland, Ohio; Independent Register and Manufacturing Company, 707-717 Frankfort Avenue, West, Cleveland, Ohio.

Galvanized Hinges for Furnace Work.

From John F. Werner, Stewartville, Minnesota.

Please tell me where I can purchase galvanized hinges for furnace work.

Ans.—The Stanley Works of Illinois, 73 East Lake Street, Chicago, Illinois.

Exhaust Heads.

From Jacobson and Bogue, Beresford, South Dakota.

Kindly advise who manufactures exhaust heads for steam.

Ans.—Imperial Iron Works, Duluth, Minnesota; Steam Appliance Company, Milwaukee, Wisconsin; Wright-Austin Company, 97 West Woodbridge Street, Detroit, Michigan; American Spiral Pipe Works, West 14th and South 48th Avenues, Chicago, Illinois.

Star Safety Razors.

From Braden and Schmidt, Dysart, Iowa.

We would like to know who makes the Star safety razors.

Ans.—Kampfe Brothers, 8 Reade Street, New York City.

Uncle Sam Warm Air Dampers.

From Thomas W. Cox, care of Haynes-Langenberg Manufacturing Company, 4045-57 Forest Park Boulevard, St. Louis, Missouri.

Can you tell us who manufactures Uncle Sam warm air dampers?

Ans.—Sayre Stamping Company, Sayre, Pennsylvania.

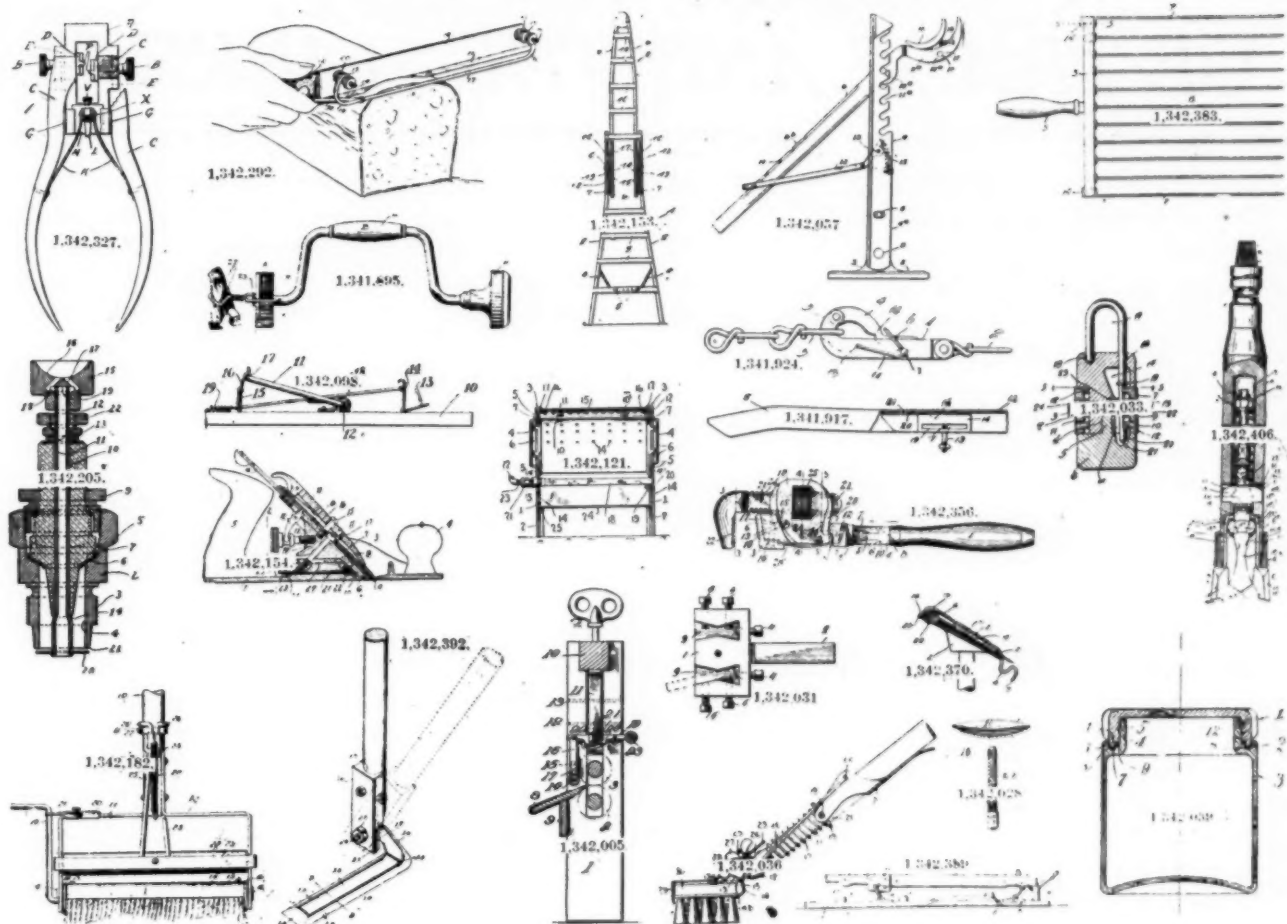
Galvanized and Black Band Iron.

From George F. Meyer, Van Dyne, Wisconsin.

Where can I buy galvanized band iron and black band iron about sixteen gauge and one and one quarter inch wide?

Ans.—Joseph T. Ryerson and Son, 2558 West 16th Street, Chicago, Illinois; Youngstown Sheet and Tube Company, Youngstown, Ohio; Peck Iron and Steel Works, Kalamazoo, Michigan; American Can and Foundry Company, Syndicate Trust Building, St. Louis, Missouri.

NEW PATENTS.



1,341,895. Wire-Twisting Device. Austin A. Gamble, Artesia, Calif., assignor to Guy B. Gamble, Artesia, Calif. Filed June 18, 1918.

1,341,917. Bumper for Automobiles. Walter P. Limacher, Pasadena, Calif. Filed March 22, 1920.

1,341,924. Tire-Chain Fastener. Elijah M. Nelson, Villisca, Iowa. Filed Sept. 15, 1919.

1,342,005. Material-Actuated Release for Clothes-Wringers. Edgar B. Stocking, Washington, D. C.; Sarah C. Stocking, executrix of said Edgar B. Stocking, deceased. Filed March 6, 1917.

1,342,028. Safety-Razor. Lawrence S. Nordskog, Des Moines, Iowa. Filed Jan. 21, 1919.

1,342,031. Tool-Holder. Adam Skibinski, Greenfield, Mass. Filed Aug. 30, 1919.

1,342,033. Permutation-Padlock. Harry N. Tennille, Dumbarton, Va. Filed April 18, 1917.

1,342,036. Mop and Brush Holder. Louis Wechsler, New York, N. Y. Filed Sept. 5, 1919.

1,342,039. Preserving-Jar. Walter F. Balcom, Dayton, Ohio. Filed Oct. 20, 1919.

1,342,057. Lifting-Jack. Fred Miller, Braddock, Pa. Filed June 16, 1919.

1,342,098. Mousetrap. Jesse R. Carson, Lawrence, Kans. Filed Jan. 2, 1919.

1,342,121. Gas-Heater. Louis Lebau, Pittsburgh, Pa. Filed Aug. 19, 1919.

1,342,153. Ladder. Harry C. Bissell and James G. Chase, Tacoma, Wash. Filed June 12, 1919.

1,342,154. Plane. William C. Bowlen, Holyoke, Mass. Filed Jan. 13, 1920.

1,342,182. Mop. Soren F. Petersen, Chicago, Ill. Filed Nov. 10, 1919.

1,342,205. Spark-Plug. George T. Dochtermann, Pas-saic, N. J. Filed Jan. 29, 1919.

1,342,292. Adjustable and Releasing Guard for Slicing-Knives. Charles H. Krapf, Brooklyn, N. Y. Filed Oct. 18, 1919.

1,342,327. Saw-Set. Clark P. Ellis, Conneaut Lake, Pa. Filed May 25, 1918.

1,342,356. Pipe-Wrench. Roy B. Shook, Dayton, Ohio. Filed Dec. 18, 1919.

1,342,370. Safety-Razor. Augustus Hager Bryant, Glen Ridge, N. J. Filed Sept. 19, 1919.

1,342,383. Bread-Knife. Steven F. Horvath, Buffalo, N. Y. Filed Feb. 21, 1920.

1,342,389. Jack. Jake J. Kuntz, Oakville, Iowa. Filed March 24, 1919.

1,342,392. Garden-Tool. Olof H. Oleen, Columbia City, Oreg. Filed April 26, 1919, Serial No. 292,871. Renewed April 24, 1920.

1,342,406. Underreamer. William W. Wilson, Los Angeles, Calif. Filed July 26, 1916.

ALL PROBLEMS ARE REPETITIONS.

There is nothing new in the problem of human existence. Today's problems are only a recurrence of what has gone before. Disputes have always been adjusted by one side or the other yielding to either force or persuasion. Therefore, why not clarify the present unsettled condition by anticipating what is surely coming to pass, by giving up untenable demands for intolerable conditions and by going ahead on the principle that what is objectively good for the other fellow is subjectively good for us? Some one must make the start. Why not do it now? Stabilize industry, and if possible, set an example to the rest of the world?

WEEKLY REPORT OF TRADE AND THE MARKETS

THE TRAFFIC SITUATION IN STEEL IS STILL UNFAVORABLE.

From all the steel-producing centers come reports of car shortage and lack of coal and materials. In the Calumet region, from South Chicago, Illinois, to Gary, Indiana, 88,000 workers face the prospect of a period of idleness owing to the insufficiency of freight cars and fuel and to the difficulty in obtaining and shipping raw materials. The renewal of the railroad strike in the East, although not yet spread to the West, has affected that part of the country through embargoes and the iron and steel output of the furnace and mills is again accumulating. It is reported that the recent order of the Interstate Commerce Commission restricting the use of open top cars to the movement of coal, if enforced, will cause over 50 per cent of the furnaces of the country to bank pig iron and all raw materials used in its manufacture within one week, since ore, coke or limestone must be moved in this type of car.

The order of the Interstate Commerce Commission issued a week ago Wednesday that all gondola cars shall be used for coal only is expected to tie up many mills in the Sharon and other districts. This order states that all cars loaded with coal shall be unloaded within 24 hours and placed on a direct line for return to the mines. Shipments of finished products out and of raw materials into many plants will be held up. Traffic in the Pittsburgh district is now as bad as at any time during the original strike. The Interstate Commerce Commission gondola car order has also affected the scrap metal market and dealers claim an entire suspension of their business while it is in force.

Two strikes affecting the iron and steel industry are now pending, one in the bar mills, and the other in the sheet and tin plate mills. The Western Bar Iron Association has an arrangement whereby work shall be continued until August. The conference between representatives of the union and employers has adjourned, no agreement having been arrived at, but is subject to the call of Tighe and Nutt, conference leaders for the union and the manufacturers, respectively. No trouble is anticipated prior to the first of August.

STEEL.

The only active competitors of the American iron and steel producers at the present time are the iron-makers of the United Kingdom. Steel output in the United Kingdom during the first five months of 1920, although at a lower rate than in 1917, was above the rate for any other year. Exports of iron and steel must still increase before they reach the rate main-

tained in 1913. Remarkable increases over exports for 1919 are shown by the British figures for the first four months of 1920. Gains were made in all the items except six, the gain for the different classes of products ranging from 8 per cent to over 400 per cent. The British position is improving and must not be underrated.

COPPER.

The domestic copper market continues dull with no improvement in the demand from consumers but at the same time there is no disposition on the part of producers to make concessions and apparently less pressure to sell by second hands. Word comes from Waterbury, Connecticut, that some of the men are returning to the brass works and an optimistic view of the future is taken by managers of the plants. At the same time consumption of copper is far below what it was six weeks ago and because of the labor strikes and unfavorable traffic conditions, copper previously purchased by manufacturers will be available for 30 to 60 days longer than anticipated when purchases were made.

September is the month when it is assumed consumers will be forced actively into the market if not too badly hampered by traffic and labor troubles, which still are dominant factors in the industry.

TIN.

The London tin market was very erratic the early part of this week, Standard showing a weak tendency and Straits advancing £5, while Straits and 99 per cent tin advanced on an average of 2 cents in New York. The week opened very quietly in New York, no sales being recorded Monday, while 420 tons were sold in London. New York still remains the cheapest tin market in the world, and about half of the trading done in the domestic market last week was for the account of British firms. Transportation is still the dominant and depressing factor in the domestic market, and if transportation and manufacture were normal the demand for tin would be such as to bring the price up to 60 or 65 cents per pound. Another depressing factor is the strike pending at the sheet and tin plate mills.

In the Chicago market, pig tin declined in price from 55 to 53 cents per pound; and bar tin from 57 to 55 cents per pound.

LEAD.

The lead market continues practically unchanged and prices for both the leading interest and the outside market remained firm at 8 cents for spot New York, and 7.75 for spot, St. Louis. Futures in New York remain unquoted and the St. Louis prices are 8.10, 8 and 7.75 for June, July and August deliveries.

Shipments of lead from St. Louis for the week ending June 26 were 37,470 pigs, as compared to 45,890 for the week preceding, while shipments since the first of the year totaled 1,015,635 pigs as against 984,320 for the corresponding period last year.

The lead situation remains unsatisfactory. Continued low prices are hurting producers, and there is an actual buying tendency developing among the producers. Since a week ago Tuesday the London market has shown continual decline, spot falling from £33 15s. to £31, and futures from £34 15s. to £34 10s. The decline was continuous the week before also. Consumption of lead in England is from 12,000 to 15,000 pounds monthly, and stocks held in that country are dwindling at a rate that should put consumers actively in the market by July or August. Exports of lead from the United States in April totaled 2,776 tons, but none has been recorded so far this month.

SOLDER.

A further decline has taken place in the Chicago solder market. Prevailing prices are as follows: Warranted, 50-50, per 100 pounds, \$35.00; Commercial, 45-55, per 100 pounds, \$32.50; and Plumbers', per 100 pounds, \$35.60.

ZINC.

Stocks of zinc are small, prompt sales were few and futures also fewer last week, although the market was steady at 7.75 for spot New York, but declined from 7.45 to 7.40 for spot St. Louis a week ago Thursday, these being the only quotations during week. For deliveries after July producers are actually buyers at the ruling prices. Galvanizers were getting better shipments of sheet bars and were expected to become active buyers of zinc, but the renewed railroad strike has offset this feeling, and the pending strike at the sheet and tinplate works is a depressing market factor. It is estimated that the output of the zinc mines is only 60 per cent of the rate a year ago.

Producers still labor under low prices and labor troubles and are disinclined to offer metal at present quotations, and an actual buying tendency is developing among them. April exports were 405 tons, as against 4,249 in March; so far this month 562 tons have been exported. Australia recently sold 240,000 tons of zinc to Belgium.

TIN PLATES.

There is a strong likelihood that a settlement of the bar, sheet and tin mills wage scales is likely to be reached this year without any trouble. The Amalgamated Association of Iron, Steel and Tin Workers is asking for a wage increase of 20 per cent in the sheet and tin plate industries which has been refused by the employers, and an increase of 15 per cent in the bar iron departments which the employers have also refused. Negotiations between the manufacturers and the union continue and the adjournment of the recent conference at Atlantic City was only in the way of a recess, according to a statement of M. F. Tighe, president of the union. The conference gave considerable attention to the request for a six-hour working day

in the sheet and tin plate mills, or a four-turn day instead of the three-turn day now in vogue, but when the men saw that a six-hour day would not work out they withdrew their demand, it is stated.

While some tin plate mills have been fortunate in receiving enough cars to make a noticeable reduction in stock piles, others have been less fortunate and have made little headway in clearing their mill warehouses. Tin plate makers in the Pittsburgh district remain sold up for some months. An active demand prevails, but makers are offering little encouragement to new buyers due to the fact that enough business is booked to warrant steady operation for many weeks ahead.

SHEETS.

It is stated that, in all probability, no sheets will be available for delivery from mills in Chicago during the remainder of this year. The leading sheet producer in the Youngstown, Ohio, district is allotting tonnages according to output. Consumers who placed orders months ago are pressing for deliveries, and a feature of the market during the past week was inquiry for fairly large tonnages from automobile manufacturers.

Eastern independents who are able to furnish any prompt material are able to obtain almost any price they desire to ask. In fact, price is not a factor with buyers and No. 28 gage black sheets have been obtained recently for delivery in three to four weeks at about 9.00 cents, Pittsburgh. On galvanized even higher figures have been done.

OLD METALS.

Wholesale quotations in the Chicago district which may be considered nominal are as follows: Old steel axles, \$32.00 to \$33.00; old iron axles, \$39.00 to \$40.00; steel spring, \$23.00 to \$24.00; No. 1 wrought iron, \$24.50 to \$25.00; No. 1 cast, \$35.50 to \$36.50; all net tons. Prices for non-ferrous metals are as follows, per pound: Light copper, 12 cents; light brass, 8 cents; lead, 6 cents; zinc, 4 cents; cast aluminum, 22½ cents.

PIG IRON.

The Interstate Commerce Commission dropped a bomb shell into the iron trade last week by prohibiting the use of open top cars except for the coal trade, says the market report of the Matthew Addy Company, Cincinnati, Ohio. The coal situation is desperate, but the remedy proposed is a good deal worse than the disease. Modern iron furnaces receive their ore, their coke and their limestone in open top cars. There is not any way of loading these raw materials except in open top cars. Pig iron is loaded direct from the casting machine or by magnets, and open top cars are the only equipment that can be used. This Interstate order, if rigidly enforced, will shut down half the iron furnaces in the country within a week. It is simply impossible for us to believe that the Interstate Commerce Commission actually proposes any such extreme and drastic procedure. However, if this order is carried out literally, production of pig iron will fall off more than 50 per cent within a week.

Current Hardware and Metal Prices.

AMERICAN ARTISAN AND HARDWARE RECORD is the only publication containing Western Hardware and Metal prices corrected weekly.

METALS	LEAD.	AUGERS.	BEATERS.
	American Pig.....\$ 9 00	Boring Machine.....40@40&10%	Carpet. Per doz.
	Bar 9 50	Irwin's .....25%	No. 7 Tinned Spring Wire...\$1 19
	Sheet.	Carpenter's Nut.....50%	No. 8 Spring Wire cop- pered 1 50
FIG IRON.	Full coils.....per 100 lbs. \$11 50	Hollow.	No. 9 Preston 1 75
Basic \$43 00	Cut coils.....per 100 lbs. 11 75	Bonney's.....per doz. 30 00	Egg. Per doz.
Southern Fdy. No. 2 46 60		Post Hole.	No. 50 Imp. Dover.....\$1 19
Lake Sup. Charcoal.. 57 50-60 50		Iwan's Post Hole and Well...30%	No. 102 " " Tinned 1 35
Malleable 43 50		Vaughan's, 4 to 9 in. .....per doz. \$14 00	No. 150 " " hotel.. 2 10
		Ship.	No. 10 Heavy hotel tinned 2 19
FIRST QUALITY BRIGHT		Ford's, with or without screw .....Net list	No. 13 " " " 3 30
TIN PLATES. Per box			No. 15 " " " 3 60
IC 14x20.....112 sheets \$16 80			No. 18 " " " 4 50
IX 14x20..... 18 75			Hand
IXX 14x20..... 20 45			8 9 10 12
IXXX 14x20..... 21 90			Per doz. \$11 50 13 00 14 75 15 00
IXXXX 14x20..... 23 15			Moulders'.
IC 20x28..... 33 60			12-inch .....Per doz. 20 00
IX 20x28..... 37 50			
IXX 20x28..... 40 90			
IXXX 20x28..... 43 80			
IXXXX 20x28..... 46 30			
COKE PLATES.			
Cokes, 180 lbs..... 20x28 \$19 80			
Cokes, 200 lbs..... 20x28 20 00			
Cokes, 214 lbs.....IC 20x28 20 70			
Cokes, 270 lbs.....IX 20x28 24 00			
BLUE ANNEALED SHEETS.			
No. 10.....per 100 lbs. \$5 27			
No. 12.....per 100 lbs. 5 32			
No. 14.....per 100 lbs. 5 37			
No. 16.....per 100 lbs. 5 45			
ONE PASS COLD ROLLED			
BLACK.			
No. 18-20.....per 100 lbs. \$7 80			
No. 22-24.....per 100 lbs. 7 85			
No. 26.....per 100 lbs. 7 90			
No. 27.....per 100 lbs. 7 95			
No. 28.....per 100 lbs. 8 00			
No. 29.....per 100 lbs. 8 10			
GALVANIZED.			
No. 16.....per 100 lbs. \$8 75			
No. 18-20.....per 100 lbs. 8 90			
No. 22-24.....per 100 lbs. 9 05			
No. 26.....per 100 lbs. 9 20			
No. 27.....per 100 lbs. 9 35			
No. 28.....per 100 lbs. 9 50			
No. 30.....per 100 lbs. 10 00			
WELLSVILLE POLISHED			
STEEL.			
No. 18-20.....per 100 lbs. \$9 65			
No. 22-24.....per 100 lbs. 9 75			
No. 26.....per 100 lbs. 9 85			
No. 27.....per 100 lbs. 9 95			
KEYSTONE HAMMERED			
POLISHED STEEL.			
Discontinued. New product will be announced later.			
BAR SOLDER			
Warranted,			
50-50 .....per 100 lbs. \$35 00			
Commercial,			
45-55 .....per 100 lbs. 32 30			
Plumbers' .....per 100 lbs. 29 60			
ZINC.			
In slabs .....\$8 25			
SHEET ZINC.			
Cask lots 15c			
Less than cask lots....15 1/4-15 1/2c			
COPPER.			
Copper Sheet, mill base....29 1/2c			

BLACKING, STOVE, (See Polish)

BLADES, SAW.

Butchers'.
Standard, $\frac{1}{2}$ & $1\frac{1}{2}$ -in. Nets
Clock Spring.....
Star

Hack.
Atkins5%
StarNets

Wood.
Disston
Nos. 6 66 26
..... \$8 00 \$8 50 \$8 00
Atkins
Nos. 2 14 18
..... \$3 85 \$6 50 \$4 75

BLOCKS.

Wooden20%
Patent20%

BOARDS.

Stove.
Wabash Crystal.....Net Prices
Wabash Art Inlay....
Wabash Embossed....

Wash.
No. 760, Banner Globe,
(single)per doz. \$5 25
No. 652, Banner Globe,
(single)per doz. 6 75
No. 801, Brass King per doz. 8 25
No. 860, Single-Plain
Pump 6 25

BOLTS.

Carriage, Machine, etc.
Carriage, cut thread, $\frac{1}{2}$ x6
and sizes smaller and
shorter30%
Carriage, sizes larger and
longer than $\frac{1}{2}$ x620%
Machine, $\frac{1}{2}$ x4 and sizes
smaller and shorter35%
Machine, sizes larger and
longer than $\frac{1}{2}$ x425%
Stove50-10%
Tire40-5%

Mortise, Door.
Gem, iron.....5%
Gem, bronze plated.....5%

Barrel.
CastNets
Wrought
Wrought, bronzed

Flush.
Wrought

Spring.
Wrought
Wrought, heavy.....

Square.
Wrought

BORERS.

Angular.
Miller's Falls.....per doz. \$23 00
Sill bora, No. 51 34 00
" " 52 39 50

Burg.
Enterprise Mfg. Co.'s No. 1.....10%
" " No. 2.....10%

BOXES.

Mall, No. 2 4 10
Per doz....\$18 00 23 00 29 00

Mitre.
Stanley's.....Net Prices
Stearns, No. 2...per doz. \$30 00

BRACES.

Fray's Genuine Spofford's
Fray's No. 0820&10%
" No. 010\$7 50
" " 8 00

BRACKETS.

Hay Rack.
Wenzelmann's No. 1, per
doz. sets.....\$18 00
Wenzelmann's No. 2, per
doz. sets..... 19 20

Shelf.
Wrought Steel.....40%

Well.
Oak, Wrought Iron Riveted
Top Ears.....per doz. \$8 00

BURRS, RIVETING.

Copper Burrs only...25% above list
Tinnern' Iron Burrs only.....30%

BUTTS.

Cast Iron.....7%
Wrought Brass (New List) Plus 5%
Wrought Steel, Bright.....40%
Wrought Steel, Japanned, ..
.....Net Prices

CALIPERS.

DoubleNets
Inside and Outside.....
Wing

CALKS

Logger's Boot.
(Lufkin R. Co.'s), per M...\$7 00

Toe.
Blunt and medium, 1 prong,
per 100 lbs.....\$6 20
Sharp, 1 prong, per 100 lbs 6 70

CANS.

Milk.
Elgin.
Gals..... 5 8 10
Each\$4 00 \$5 15 \$5 15
Iowa Patterns.
Gals..... 5 8 10
Each\$4 00 \$5 15 \$5 15

CAN OPENERS.

See Openers.

CAPS, GUN.

See Ammunition.

CARPET STRETCHERS.

See Stretchers.

CARRIERS.

Hay.
Diamond, Regular...each, Nets
Diamond, Sling.....

CARTRIDGES.

See Ammunition.

CASTERS.

Standard—Ball Bearing,
.....50&10%
Bed40%
Common Plate.
Brass Wheel.....15%
Iron and porcelain wheels,
new list50%
Philadelphia Plate, new
list50%
Martin's40%

CATCHERS, GRASS.

No. 160S, per doz.....\$12 25
No. 165S, " 14 01

CEMENT, FURNACE.

American Seal, 5 lb. cans, net \$0 45
" " 10 lb. cans, " 90
" " 25 lb. cans, " 1 87
Pecora, 5 lb. cans..... 45
" 10 lb. cans..... 90
" 25 lb. cans..... 1 87

CHAIN AND CHAINS.

Breast Chains.
With Slide..... 5 00
Without Slide.... 4 60
Doubleslackdoz. pairs, \$8 50
With Covert Snaps " 5 80

Picture Chains.

Light Brass, 3 ft...per doz. \$1 25
Heavy Brass, 3 ft.. " 1 75

Sash Chain. (Morton's)

Steel, per 100 ft.
0..... \$2 50
2..... 3 10
1..... 3 60

Champion Metal.
0R..... 5 40
2R..... 5 60
1R..... 7 75

Champion Metal.—Extra Heavy.
1H..... 9 50

Cable Sash Chains.

Steel.....List Net Plus 15%

CHALK, CARPENTERS'.

Blueper gro., \$1 40
Red 1 40
White 1 25
Common White School
Crayon 25c

CHIMNEY TOPS.

In bags.....per bag \$1 70

CHECKS, DOOR.

Corbin.....Net List
Russwin..... 20%

CHECKS, DOOR.

Iwan's Volcano.....35%

CHISELS.

Box.
Inches..... 12 14
Round, per doz....\$5 25 5 75
Flat, per doz..... 7 25 8 25

Cold.
Good quality, $\frac{1}{2}$ in. and
largerNets
Smaller size, per doz.....Nets

Socket, Firmer.
Ohio.....Price on Application

Socket, Framing.
Ohio.....Price on Application

Tanged, Firmer.—Barton's
With handles.....Net list

Choppers, See Cutters, Meat.

CHUCKS, DRILL.

Goodell's, for Goodell's Screw
DriversList less 35-40%
Yankee, for Yankee Screw
Drivers \$6 00

CHURNS.

Anti-Bent Wood,
Gal..... 5 7 10
Each\$3 90 4 60 4 85
Belle, Barrel65&7%
Common Dash,
Gal..... 5 7
Per doz. 17 00 19 00

CLAMPS.

Adjustable.
Martin's30%
No. 63, Screw.....20%

Cabinet.
Screw20%

Carpenters'.
Steel Bar...List price plus 25%

Carriage Makers'.
 $2\frac{1}{2}$ "per doz. \$7 00
" " " " 14 00
" " " " 28 00
12" 46 00

Quilt Frame.
No. 30 Ball and Socket,
 $2\frac{1}{2}$ " head.....per gross \$11 25
No. 50, Ball and Socket,
 $3\frac{1}{2}$ " head.....per gross 12 25

Hose.
Sherman's, brass, $\frac{1}{4}$ " per
doz. 48c
Double, brass, $\frac{1}{4}$ -in., per
doz. 1 20

Saw Filers.

Wentworth's, No. 1, \$12.50; No.
2, \$18.25; No. 3, \$16.25.

CLAWS, TACK.

Wood hdl. No. 10....per doz. \$0 95
Forged steel, wood hdl. " 1 75
Solid steel..... " 2 40
Giant " 50

CLEANERS.

Drain.
Iwan's Adjustable.....25%
Iwan's Stationary.....30%

Pot.
Wireper doz. \$0 75

Side-Walk.
Steel.....per doz., Net prices

CLEAVERS.

Family.
Beatty's,
Inch.... 7 8 9 10
Per doz. \$27 00 29 00 33 00 36 00

CLEAVISES.

Malleable10c lb.

CLIPPERS.

Bolt\$2 25&6 00

CLIPS.

Axle65&5%

Damper.
Standardper doz. 70c
Troy 38c

Hammer 50c

CLOTH.

Emery.
StarNew Prices
B. & A.....

Hardware Wire— Prices on
Full rolls (100 ft.) application
12 Mesh, galvanized " 37c
14 " " " 40c
16 " " " 43c
18 " " " 43c

Screen Wire. Prices on application
12 mesh, painted, per
100 sq. ft.

COLLARS, STOVE PIPE.

Lacquered.
Inches 5 6 7
Fancy pattern,
per doz.... 80c 85c \$1 15

COMPASSES.

Carpenters'15%

COPPER—See Metals.

COPPERS—Soldering.

Pointed Roofing.
3 lb. and heavier....per lb. 37c
2 lb. 38c
1 lb. 37c
1 lb. 40c
1 lb. 43c

CORD.

Picture.
White Wire.....60&5%

Sash.
Sampson Spot, No. 7, per
doz.\$24 50
Sampson Spot, No. 7, per
doz.\$29 40

CORKSCREWS.

Walker's30%
Williamson's Regular....35&11%
Williamson's Forged Worm...40%

COTTERS, SPRING.

All sizes.....87% $\frac{1}{2}$

COUPLINGS, HOSE.

Brassper doz. \$2 25

COVERS, WAGON—See Tents.

CRADLES, GRAIN.

Morgan's Grapevine per doz. \$45 00

CRAYONS—See Chalk.		ELBOWS—Conductor Pipe.		Wood Pails.		HANGERS.	
CUTTERS.		Galvanized Steel, Tin and Terne, Round Corrugated.		Frazer's, 15lb \$1.00; 25lb \$1.50 each.		Barn Door.	
Glass.		Size. Doz.		Hub Lightning, 15lb 90c; 25lb \$1.21 each.		U. S. Roller Bearing.....12½%	
Woodward.....40%		2-inch.....50%		Tin Cans.		Matchless.....12½%	
Ment.		3-inch.....50%		Frazer's		Warehouse Tandem, No.	
Enterprise—Nos. 5 10 12		4-inch.....50%		1½ lb. per doz.....\$1 75		44.....33½%	
Each.... \$2 50 \$4 25 \$3 75		5-inch.....50%		3 lb. per doz.....3 25		Conductor P.	
Nos. 22 32		6-inch.....50%				Iwan's Perfection.....45%	
" 6 50 8 50		EMERY, TURKISH.				Eave Trough.	
Pipe.		Out of market at present time.				All sizes, 5" or smaller.	
Saunders', No. 1 2 3		Domestic, lb. ....10c				..... per gross \$3 80 Net	
Each .....\$1 85 2 75 6 75		EYES.				All sizes, larger than	
Slaw and Kraut. Per doz.		Bright Wire Screw—See Woods,				5"..... per gross, 5 00 "	
4-knife Kraut.....\$20 00-55 00		B. W.				Garage Door.	
3-knife Kraut,		Drifting Pick .....60, 10 & 5%				Right Angle .....50&10%	
8x27 in. 13 00-18 00		Hooks and Eyes—				Sliding Folding .....50%	
1-knife Slaw 2 50		Brass, 1½" No. 60, per				Recceding .....50%	
2-knife Slaw 3 00		gross .....\$3 50				Parlor Door.	
Washer 11 00		Iron, 1½" No. 50, per gross 1 60				Acme .....per set, \$3 75	
DAMPERS, STOVE PIPE.		FASTENERS, STORM SASH.				Ives' Improved.... " 3 40	
Ideal		Shroeder's.....per doz. \$1 50				Lane's Standard... " 3 50	
3".....\$1 00		Sensible..... " 3 00				Lane's New Model " 3 10	
4".....1 05		FILES AND RASPS.				Le Roy Noiseless.....40&10%	
5".....1 15		Delta				Richards.....25%	
6".....1 25		Delta .....30%				Advance .....40&10%	
7".....2 20		Swiss.....List plus 25%				HASPS.	
8".....3 75		Utility..... " net.				Hinge, Wrought, ..Add 50% to list	
10".....6 00		Nicholson's—				With Staples—See Staples.	
DIES AND STOCKS		American .....5-10%				HATCHETS.	
Discount.....New List		Arcade .....50-10-7½%				Crescent .....50%	
DIGGERS		Black Diamond.....40-10%				Cast Claw.....per doz. \$1 50@1 85	
Post Hole		Eagle .....50-10-7½%				Cast Shingling " 1 50@1 85	
Eureka.....per doz. \$14 50		Great Western .....50-10-7½%				Germantown .....7½%	
Iwan's Split Handle (Eu-		Kearney & Foot.....50-10-7½%				HAY KNIVES.	
reka)		McClellan .....50-10-7½%				See Knives.	
4-ft. Handle..per doz. 15 00		Nicholson brand.....40-10-5%				HAY RACK BRACKETS.	
7-ft. " ..per doz. 20 00		J. Barton Smith.....50&2½%				Wenzleman's No. 1	
Iwan's Perfection (Atlas)		X-F Swiss Pattern....Net List				..... per doz. sets, \$18 00	
per doz 16 50		Simonds' .....50%				Wenzleman's No. 2	
Iwan's Hercules pattern		Disston's .....50%				..... per doz. sets, 19 20	
per doz. 18 00		Heller's .....60&10%				HINGES.	
See also Augers—Post Hole.		FIRE POTS.				Blind.	
Dividers, Wing .....25%		Clayton & Lambert's—				Clark's Gravity	
DOOR CHECKS—See Checks		each .....\$4 00 @ 6 00				No. 1.....per doz. sets, \$2 25	
DOORS, SCREEN		Gate City.....each, 6 25				No. 3..... " " 5 75	
½-in. 4-panel, painted Net Prices		Gem .....each, \$6 75 @ 8 50				Gate.	
1½-in. 4-panel, painted "		Barley.				Clark's 1 2 3	
1½-in. 3-panel, natural		Steel, new, list.....New Prices				Hgs & Lths, dz. \$5 50 7 00 9 75	
pine, fancy "		Hay.				Hinges only " 4 75 5 50 8 00	
DOOR HANGERS—See Hangers		2-tine.....New prices				Latches only. 1 90 1 90	
DRILLS		3- "New prices				Screen Door.	
Blacksmiths' Twist. (New		4- "New prices				Cast Iron .....gross \$10 00	
List) .....40%		Header.				Steel " 7 00	
Breast.		3-tine.....New prices				Spring.	
Millers Falls No. 12, each \$46 00		4- "New prices				Chicago .....Add 12½% to list	
" " 112, " 26 00		Manure.				Columbia Dbl. Acting.	
Hand.		4-tine.....New prices				..... 40&10&5@	
Goodell's Automatic.		FREEZERS—ICE CREAM				Gem .....25%	
Nos. 01 03		White Mountain 1-quar....@				Ideal Detachable, per gro. \$11 00	
Per doz. 12 00 14 40		" " 2 "@				Matchless .....40%	
Goodell's Single Gear, per		" " 4 "@				New Idea .....per gro. \$7 20	
doz. 15 75		" " 6 "@				Oxford .....20%	
Goodell-Pratt No. 4½ per		Arctic.....1 "@				Wrought Iron.	
doz. list, less.....30%		" " 2 "@				New Lists.....	
Goodell-Pratt No. 379 per		" " 4 "@				Light Strap Hinges.....5&5%	
doz. list, less.....30%		" " 6 "@				Heavy Strap Hinges...20&7½%	
Reciprocating.		" " 1 "@				Light T Hinges...List plus 45%	
Goodell's.....per doz. 26 00		" " 2 "@				Heavy T Hinges...List plus 45%	
DOIVERS, SCREW		" " 4 "@				Extra Heavy T Hinges. 15&5%	
Standard .....Nets		" " 6 "@				Screw Hook and Strap.	
Lock Ferrule "		Cream Pail.				6 to 12 in....per 100 lbs. \$7 75	
Champion "		Fairmount..... per doz. \$3.75				14 to 20 in.... " " 7 50	
Champion Pattern "		Marking, Mortise, etc.....				22 to 36 in.... " " 7 25	
Clark's Interchangeable .. "		..... Nets				Screw Hook and Eye.	
Edison "		Wire.				¾ in.....per doz. pair \$2 50	
Reed's Lightning "		Disston's .....25%				¾ in..... " " 3 50	
Goodell's Spiral "		GIMLETS.				½ in..... " " 5 00	
Yankee Ratchet "		Discount .....35@40%				WOES.	
" Spiral "		GLUE.				Garden .....Net	
EAVES, TROUGH		Bulk.				Grab.	
50% off Standard List.		B Amber.....per lb. 35c				Extra .....New prices	
ELBOWS—Stove Pipe		A White..... " 40c				Hazel..... per doz. New prices	
1-piece Corrugated, Uniform		H. S. Amber..... " 32c				Ladies' and Boys' ....New prices	
Doz.		Liquid.				Mortar .....New prices	
5-inch .....\$2 25		Army & Navy.....40%				Planter's Eye.....New prices	
6-inch 2 30		Le Page's—				Weed .....New prices	
7-inch 2 60		List "A".....37½%				HOOKS.	
Uniform, Collar Adjustable		List "B".....33¼%				Awning, No. 60.....per gro. 50%	
Doz.		List "C".....25 %				Belt.	
5-inch .....\$2 65		GREASE, AXLE.				Brown's .....70&5%	
6-inch 2 70		Wood Boxes.				Jones' .....65&5%	
7-inch 2 00		Frazer's.....per gro. \$13 00				Bench.	
		Hub Lightning 7 50				See Stops, Bench.	

PARERS.		Fencing.		PUNCHES.		SAWS.	
Apple.		Black Bull .....All Nets		Conductors.		Band.	
Goodell's .....per doz. \$10 80		Farmers' Choice .....All Nets		No. 22 .....per doz. \$3 00		E. C. Atkins & Co.	
Turntable " 11 40		Russell's .....All Nets		Machine .....per lb. 25		Disston's .....Prices on applic'n	
White Mountain... " 8 40		Flat and Round Nose.		Saddlers'.		Buck.	
Reading, No. 78... " 11 40		Bernard's .....New Prices		Common.....per doz. 1 50 to 5 00		Disston's .....Prices on applic'n	
Potato.		Lodi .....New Prices		Revolving Spring.		Jackson's .....New nets	
Goodsell's Saratoga, 10½		Paragon .....New Prices		Stearns, No. 10.....per doz. \$6 25		Butchers'.	
in, doz..... 6 50		Tinners'.		No. 40..... " 12 00		E. C. Atkins & Co.	
Goodsell's Saratoga, 5 in.		Hollow .....Net List		No. 60..... " 16 00		Disston's .....Prices on applic'n	
doz. 5 50		Solid .....each, 10c		PURTY.		Circular.	
PICKS.		PLUMBS AND LEVELS.		Strictly pure...per 100 lbs. \$4 25		E. C. Atkins & Co.	
Adze Eye Ore.....22½%		Common .....Nets		RAIL.		Disston's .....Prices on applic'n	
Drifting and Poll Picks.....22½%		Cook's .....40%		Matchless, 1-in.....5c		Hiles' .....New nets	
Plumbs, Railroad .....22½%		Davis' Iron.....25%		Matchless, 1½-in.....7c		Compass.	
Surface .....22½%		Davis' Inclinator.....15%		Storm King .....5c		E. C. Atkins & Co.	
PINCERS.		POINTERS, SPOKE.		Sliding Door.		Disston's .....Prices on applic'n	
Carpenters', cast steel.		Stearns' No. 1.....per doz. \$8 00		Bronzed wrought iron,		Coping.	
No. 6 8 10 12		" No. 2..... " 10 00		.....per ft. 8¼c		E. C. Atkins & Co.	
Each...\$0.63 .80 1.05 1.15		POKERS, STOVE.		RAKES.		Disston's .....Prices on applic'n	
Blacksmiths' .....45%		Wrt Steel, str't or bent,		Garden. Per doz.		Cross-Cut.	
Heller's .....40%		.....per doz. \$0 75		Steel, Bow, 12-in. Teeth...\$8 50		E. C. Atkins & Co.	
PINS		Nickel Plated, coil han'l's " 1 10		Steel, Bow, 14-inch " 9 25		Disston's .....Prices on applic'n	
Clothes.		POLISH.		Malleable Iron, 12-in. " 4 75		Dehorning.	
Common...per box of 5 gro. \$0 95		Metal.		Malleable Iron, 14-in. " 5 00		Disston's .....Prices on applic'n	
Picket.		Wizard, 6 -oz. per gross \$18 00		Hay.		Flooring.	
Flutter, 15-in.....per doz. \$1 10		" ½-pt. " " 20 40		Wood, 10 Teeth.....\$4 00		E. C. Atkins & Co.	
Fluted, 21-in..... " 1 60		" 1 -pt. " " 36 00		Lawn.		Disston's .....Prices on applic'n	
Spiral " 1 90		" 1 -qt. " doz. 6 00		20 Teeth .....per doz. \$5 50		Hack.	
PIPE.		" ½-gal. " " 10 80		RASPS—See Files.		Disston's .....Prices on applic'n	
Conductor.		" 1 -gal. " " 18 60		RAZORS—SAFETY.		Hand and Rip.	
Plain Round and Round Corru-		Stove.		Gillette .....per doz. \$45 00		E. C. Atkins & Co.	
gated.		Black Eagle Paste 5 -oz. \$13 80		Auto Strop " 45 00		Disston's No. 7 Prices on applic'n	
29 Gauge .....50%		" " ½-lb. 17 40		Gem " 8 40		Disston's Nos. 8, D8, 12, 76,	
28 "40%		" " 1 -lb. 31 20		Gem (3 doz. lots) " 8 00		112, D100, and 120,	
26 "30%		per case 5 25		Ever Ready " 8 40		prices on applic'n	
24 "List		Black Eagle Liquid, 6-oz.		Ever Ready (3 doz. lots) " 8 00		Keystone .....New nets	
Square Corrugated A and B and		per gross 15 60		RAZOR STROPS.		Keyhole.	
Octagon.		Black Kid Paste, 5 lbs.		Star (Honing) .....50%		E. C. Atkins & Co.	
29 Gauge .....40%		per case 6 00		REGISTERS.		Disston's .....Prices on applic'n	
28 "35%		Black Jack Liquid, ½-pt.		Cast Iron .....10%		Miter Box.	
26 "25%		per gross 15 60		Cast Iron .....10%		E. C. Atkins & Co.	
24 "List		Black Jack Paste, No. 10.		Steel and Semi-Steel.....20%		Disston's .....Prices on applic'n	
Galvanized Toncan Metal, Gen-		per gross 13 20		Solid Brass or Bronze Metal		Panel.	
uine O. H. Iron, Lyonore		POWDER.		Baseboard .....20%		E. C. Atkins & Co.	
Metal, Charcoal Iron and		See Ammunition.		Adjustable Ceiling Ventilators 20%		Disston's No. 7 Prices on applic'n	
Keystone C. B.		PRESSES, FRUIT AND JELLY.		REGISTER FACES.		Patternmakers'.	
Plain Round and Round Corru-		Enterprise Manufacturing Co. 25%		Japanned, Bronzed and Plated,		E. C. Atkins & Co.	
gated.		PRIMERS.		4x6 to 14x1.....20%		Disston's .....Prices on applic'n	
28 Gauge.....40%		See Ammunition.		14x14 to 38x42.....40%		Pruning.	
26 "30%		PRUNERS.		REVOLVERS.		Disston's .....Prices on applic'n	
24 "List		Blair's Rings .....per doz. \$ 75		Iver Johnson Safety Automatic		Stairbuilders'.	
Square Corrugated A and B Pol-		Blair's Rings " 1 00		Hammer .....New Nets		E. C. Atkins & Co.	
ygon and Octagon.		Brown's Rings " 72		Hammerless " "		Disston's .....Prices on applic'n	
28 Gauge.....35%		Brown's Rings " 1 00		I. J. Model 1900..... " "		Wood.	
26 "25%		Hill's Rings " 1 00		RINGS AND RINGERS.		E. C. Atkins & Co.	
24 "List		Hill's Ring, boxes " 72		Copper .....2½-in. 3-in.		Prices on applic'n	
14 and 16-oz. Copper, all de-		Major Rings..... " 60		Per doz. ....\$2 40 \$2 65		SAW BUCKS—See Bucks.	
signs .....List.		Perfect Ringers..... " 1 50		Rea's Improved Self-		SAW SETS—See Sets.	
Portico Elbows.		Wolverine Ringers " 1 10		Piercing copper,		SAW TOOLS—See Tools.	
Galvanized and Terne Steel.		PULLERS.		.....doz. 3 40		SAW FRAMES.	
1 -inch .....35%		See Ammunition.		Steel, per doz..... 1 50 1 80		Common, plain...per doz. \$1 50	
1½-inch .....35%		PULLEYS.		Hog.		Common painted.. " 2 10	
1½-inch .....35%		Awning—Jap'd .....10%		Blair's Rings .....per doz. \$ 75		SCALES.	
2 -inch .....35%		Clothes Line .....10%		Blair's Rings " 1 00		Pelouze .....40&10%	
Tubing .....25%		Hay Fork.		Brown's Rings " 72		SCISSORS.	
Discounts on Round apply on		Iron Wheel, 5-in. per doz. 2 50		Brown's Rings " 1 00		Star .....60%	
sizes 2-inch to 6-inch inclusive.		Wood Wheel, 6-in. " 2 65		Hill's Ring, boxes " 72		SCOOPS.	
Freight allowed on 15 dozen or		Wood Wheel, 6-in.,		Major Rings..... " 60		½ bu "Hercules"...per doz. 3 70	
more, to all points where		pass knot..... " 3 00		Perfect Ringers..... " 1 50		1-bu. "Hercules"... " 5 00	
freight rate does not exceed		Sash.		Wolverine Ringers " 1 65		SCRAPERS.	
\$1.00 per 100 lbs. Less than		Common .....Net		Fruit Jar.		Triangular, No. 6 per doz. \$6 25	
15 dozen F. O. B. Factory.		Common-Sense, 2-in.....Net		White .....per lb. 30c		SCREEN DOOR HINGES.	
Terms: 30 days net, 2% ten days.		Empire Pattern, 2-in.....Net		RIVETS.		Cast iron .....gross, \$13 00	
Standard Gauge Conductor Pipe,		Ideal .....Net		Copper Belt...Add 15% to list		Steel " 9 50	
plain or corrugated.		Steel .....Net		Coppered Iron .....30%		SCREWS.	
Not Nested .....35-5%		PUMPS.		Tinners' .....30%		Bench.	
Nested solid .....40%		Pitcher Spout.		ROPE.		Iron, ins. 1 1¼ 1 1½	
Stove.		Nos. 1 2 3 4		¼, 5-16 in. Com. on reels,		\$6 82 \$7 87 9 45 16 80	
Per 100		Each .....Nets		per lb. ....85c		Wood, white maple, per doz. 6 00	
Joints		Spray.		¼, 5-16 in. Com. in coils,		Hand—Wood .....50%	
29 Gauge, 3-inch.....\$19 00		Midget Junior.....per doz. 3 75		per lb. ....85c		Hand Rail .....22%	
" 4-inch..... 19 50		New Misty " 6 00		Sisal.		Jack .....20%	
" 5-inch..... 20 25		Crescent " 6 50		1st Quality .....19½c		Lag or Coach—all sizes, gimlet	
" 6-inch..... 21 00		Rules.		No. 2 .....18½c		pointed .....45-5%	
" 7-inch..... 23 00		Lufkin's Hickory Board.... " "		Pure Manila.		Saw—Centennial.	
T-Joint Made up.		1st Quality, base...per lb. 28½c		Hardware Grade...per lb. 27½c		Nos. 1 2 3 4	
6-inch .....per 100 \$60 00		Rules.		SALES.		Per doz .....47c 55c 75c 90c	
Furnace Pipe.		Lufkin's Log " "		SALES.		Wood.	
Double Wall Pipe and Fit-		Lufkin's Boxwood " "		SALES.		F. H. Bright .....70-20%	
tings .....20%		Lufkin's Zigzag " "		SALES.		R. H. Blued .....67½-20%	
Single Wall Pipe, Round		SALES.		SALES.		F. H. Jap'd .....62½-20%	
Pipe Fittings .....15%		SALES.		SALES.		F. H. Brass .....60-20%	
Galvanized and Black Iron		SALES.		SALES.		R. H. Brass .....57½-20%	
Pipe, Shoes, etc. ....15%		SALES.		SALES.		SCYTHES.	
PLANES.		SALES.		SALES.		Clipper, Grass .....per doz. \$13 50	
Stanley Iron Bench.....net		SALES.		SALES.		Honest Dutchman.. " 13 50	
PLATES, TIN.		SALES.		SALES.			
See Metals in Column 1.		SALES.		SALES.			
PLIERS.		SALES.		SALES.			
Giant, Button's—Nets.		SALES.		SALES.			
Cutting.		SALES.		SALES.			
Bernard'sNew Prices		SALES.		SALES.			
LodiNew Prices		SALES.		SALES.			
ParagonNew Prices		SALES.		SALES.			

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ADVERTISERS' INDEX

ALPHABETICAL LIST

Abbott Mfg. Co.	53
American Furnace Co.	6
American Sheet & Tin Plate Co.	53
American Steel & Wire Co.	57
Bemis & Call Hdw. & Tool Co.	56
Berger Bros. Co.	51
Bertsch & Co.	52
Black Silk Stove Polish Works.	13
Brier Hill Steel Co.	50
Buffalo Sled Co., The.	57
Bullard & Gormley Co.	59
Central Pattern Co.	13
Clark-Smith Hdw. Co.	51
Clayton & Lambert Mfg. Co.	53
Cleveland & Buffalo Trans. Co.	53
Cleveland Castings Pattern Co.	13
Coes Wrench Co.	56
Corbin Screw Corporation.	55
Cortright Metal Roofing Co.	51
Curfman Mfg. Co., F. L.	47
Danville Stove & Mfg. Co.	5
Diener Mfg. Co., G. W.	52
Disston & Sons, Inc., Henry.	54
Dominion Asbestos Rubber Corp.	11
Double Blast Mfg. Co.	53
Dover Wood Face Co.	13
Dries & Krump Mfg. Co.	52
Fanner Mfg. Co., The.	13
Friedley-Voshardt Co.	51
Gerock Bros. Mfg. Co.	53
Globe Stove & Range Co., The.	1
Hall-Neal Furnace Co.	7
Hammond Heating Co.	7
Harrington & King Perforating Co.	51
Hart & Cooley Co.	9
Haynes-Langenberg Mfg. Co.	5
Hemp & Co.	52
Henry Furnace & Fdy. Co.	3
Hess-Snyder Co.	7
Howes Co., The S. M.	11
Hussey & Co., C. G.	53
Independent Register & Mfg. Co.	55
Inland Steel Co.	48
Jack Corporation, A. W.	13
Kimball Bros. Co.	47
Knoedler, Frederick J.	52
Lovell Mfg. Co.	55
Lufkin Rule Co.	53
Lupton's Sons Co., David.	49
Mahoning Fdy. Co.	2
Merchant & Evans Co.	49
Meyer Furnace Co.	4
Meysers Mfg. Co., Fred J.	47
Michigan Safety Furnace Pipe Co.	10
Milwaukee Corrugating Co.	60
Monroe Fdy. & Furnace Co.	6
Niagara Machine & Tool Works.	52
Nicholson File Co.	56
Nickel Plate Stove Polish Co.	13
North Bros. Mfg. Co.	57
Northwestern Stove Repair Co.	13
Peck, H. E.	47
Quick Meal Stove Co.	2-52
Quincy Pattern Co.	13
Republic Electric Lamp Co.	57
Rock Island Mfg. Co.	57
Ryerson & Son, Joseph T.	14
Safety Interlocking Stove Pipe Co.	11
St. Louis Technical Institute.	47
Scheible Monerief Heater Co.	6
Schwab & Sons Co., R. J.	7
Standard Ventilator Co.	51
Stearns Register Co.	8
Sullivan-Geiger Co.	13
Towner, F. A.	47
Thomas & Armstrong Co.	51
Vedder Pattern Works.	13
Waterloo Register Co.	9
Whitaker-Glessner Co.	50
Whitney Mfg. Co., W. A.	52
Wise Furnace Co.	7

CLASSIFIED INDEX

Accessories—Automobiles.	
Curfman Mfg. Co., F. L., Maryville, Mo.	
Dominion Asbestos & Rubber Corp., New York, N. Y.	
Asbestos Sheets.	
Dominion Asbestos & Rubber Corp., New York, N. Y.	
Jack Corporation, A. W., Lockport, New York	
Ball Ties.	
American Steel & Wire Co., Chicago, Ill.	
Bolts and Nuts.	
Corbin Screw Corporation, New Britain, Conn.	
Ryerson & Son, Jos. T., Chicago, Ill.	
Brakes—Bicycles.	
Corbin Screw Corporation, New Britain, Conn.	
Brakes—Cornice.	
Bertsch & Co., Cambridge City, Ind.	
Dreis & Krump Mfg. Co., Chicago, Ill.	
Niagara Machine & Tool Wks., Buffalo, N. Y.	
Brass and Copper.	
Hussey & Co., C. G., Pittsburgh, Pa.	
Merchant & Evans Co., Philadelphia, Pa.	
Castings—Malleable.	
Fanner Mfg. Co., Cleveland, Ohio	
Ceilings—Metal.	
Friedley-Voshardt Co., Chicago, Ill.	
Milwaukee Corrugating Co., Milwaukee, Wis.	
Whitaker-Glessner Co., Wheeling, W. Va.	
Chain—Furnace.	
Corbin Screw Corporation, New Britain, Conn.	
Chaplets.	
Fanner Mfg. Co., Cleveland, Ohio	
Cleanders—Hand.	
Nickel Plate Stove Polish Co., Chicago, Ill.	
Clips—Damper.	
Waterloo Register Co., Waterloo, Iowa	
Coasters.	
Buffalo Sled Co., No. Tonawanda, N. Y.	
Cornices.	
Friedley-Voshardt Co., Chicago, Ill.	
Cribs and Bins.	
Thomas & Armstrong Mfg. Co., London, Ohio	
Cut-Offs—Rain Water.	
Sullivan-Geiger Co., Indianapolis, Ind.	
Dampers—Hot Air.	
Howe Co., The S. M., Boston, Mass.	
Doors—Fire.	
Merchant & Evans Co., Philadelphia, Pa.	
Eaves Trough.	
Abbott Mfg. Co., Cleveland, Ohio	
Berger Bros. Co., Philadelphia, Pa.	
Clark-Smith Hardware Co., Peoria, Ill.	
Milwaukee Corrugating Co., Milwaukee, Wis.	
Whitaker-Glessner Co., Wheeling, W. Va.	
Elbows & Shoes—Conductor.	
Lupton's Sons Co., David, Philadelphia Pa.	

Electric Bulbs.	
Republic Electric Lamp Co., Moline, Ill.	
Elevators.	
Kimball Bros. Co., Council Bluffs, Iowa	
Enamel—Iron.	
Black Silk Stove Polish Works, Sterling, Ill.	
Nickel Plate Stove Polish Co., Chicago, Ill.	
Fence Gates.	
American Steel & Wire Co., Chicago, Ill.	
Fenders.	
Meysers Mfg. Co., Fred J., Hamilton, Ohio	
Files.	
Disston & Sons, Inc., Henry, Philadelphia, Pa.	
Nicholson File Co., Providence, Rhode Island	
Freezers—Ice Cream.	
North Bros. Mfg. Co., Philadelphia, Pa.	
Furnace Rings.	
Independent Reg. & Mfg. Co., Cleveland, Ohio	
Furnaces—Soldering.	
Clayton & Lambert Mfg. Co., Detroit, Mich.	
Diener Mfg. Co., G. W., Chicago, Ill.	
Double Blast Mfg. Co., North Chicago, Ill.	
Quick Meal Stove Co., St. Louis, Mo.	
Guards—Fire.	
Meysers Mfg. Co., Fred J., Hamilton, Ohio	
Handles—Boiler.	
Berger Bros. Co., Philadelphia, Pa.	
Hangers—Eaves Trough.	
Abbott Mfg. Co., Cleveland, Ohio	
Heaters—School Room.	
Globe Stove & Range Co., Kokomo, Ind.	
Hammond Heating Co., Cincinnati, Ohio	
Haynes-Langenberg Mfg. Co., St. Louis, Mo.	
Meyer Furnace Co., Peoria, Ill.	
Monroe Fdy. & Furnace Co., Monroe, Mich.	
Heaters—Warm Air.	
American Furnace Co., St. Louis, Mo.	
Danville Stove & Mfg. Co., Danville, Pa.	
Globe Stove & Range Co., Kokomo, Ind.	
Haynes-Langenberg Mfg. Co., St. Louis, Mo.	
Hall-Neal Furnace Co., Indianapolis, Ind.	
Hammond Heating Co., Cincinnati, Ohio	
Henry Furnace & Fdy. Co., Cleveland, Ohio	
Hess-Snyder Co., Massillon, Ohio	
Mahoning Fdy. Co., Youngstown, Ohio	
Meyer Furnace Co., Peoria, Ill.	
Monroe Fdy. & Furnace Co., Monroe, Mich.	
Scheible-Monerief Heater Co., Cleveland, Ohio	
Schwab & Sons Co., R. J., Milwaukee Wis.	
Waterloo Register Co., Waterloo, Iowa	
Wise Furnace Co., Akron, Ohio	
Horse Shoes.	
American Steel & Wire Co., Chicago, Ill.	
Jobbers—Hardware.	
Bullard & Gormley Co., Chicago, Ill.	
Clark-Smith Hardware Co., Peoria, Ill.	
Machines—Crimping.	
Bertsch & Co., Cambridge City, Ind.	
Niagara Machine & Tool Works, Buffalo, N. Y.	

Machines—Stove Pipe.	
Hemp & Co., St. Louis, Mo.	
Machines—Tinsmiths'.	
Bertsch & Co., Cambridge City, Ind.	
Dreis & Krump Mfg. Co., Chicago, Ill.	
Hemp & Co., St. Louis, Mo.	
Knoedler, Frederick J., Philadelphia, Pa.	
Niagara Machine & Tool Works, Buffalo, N. Y.	
Whitney Mfg. Co., W. A., Rockford, Ill.	
Metal—Babbitt	
Merchant & Evans Co., Philadelphia, Pa.	
Metals—Perforated.	
Harrington & King Perforating Co., Chicago, Ill.	
Millboard—Asbestos.	
Asbestos & Rubber Corp., New York, N. Y.	
Jack Corporation, A. W., Lockport N. Y.	
Miters.	
Friedley-Voshardt Co., Chicago, Ill.	
Nails—Slatting.	
Hussey & Co., C. G., Pittsburgh, Pa.	
Nails—Wire.	
American Steel & Wire Co., Chicago, Ill.	
Ornaments—Sheet Metal.	
Friedley-Voshardt Co., Chicago, Ill.	
Gerock Bros. Mfg. Co., St. Louis, Mo.	
Parts—Bicycles	
Corbin Screw Corp., New Britain, Conn.	
Parts—Tools.	
Corbin Screw Corp., New Britain, Conn.	
Patterns—Furnace.	
Central Pattern Co., Quincy, Ill.	
Patterns—Machinery.	
Central Pattern Co., Quincy, Ill.	
Patterns—Stove.	
Central Pattern Co., Quincy, Ill.	
Cleveland Castings Pattern Co., Cleveland, Ohio	
Quincy Pattern Co., Quincy, Ill.	
Vedder Pattern Wks., Troy, N. Y.	
Pipe—Conductor.	
Berger Bros. Co., Philadelphia, Pa.	
Clark-Smith Hdw. Co., Peoria, Ill.	
Friedley-Voshardt Co., Chicago, Ill.	
Hussey & Co., C. G., Pittsburgh, Pa.	
Milwaukee Corrugating Co., Milwaukee, Wis.	
Pipe and Fittings—Furnace.	
Henry-Miller Foundry Co., Cleveland, Ohio	
Michigan Safety Furnace Pipe Co., Detroit, Mich.	
Safety Interlocking Stove Pipe Co., Mt. Pleasant, Iowa	
Stearns Register Co., Detroit, Mich.	
Pipe and Fittings—Stove.	
Hemp & Co., St. Louis, Mo.	
Michigan Safety Furnace Pipe Co., Detroit, Mich.	
Safety Interlocking Stove Pipe Co., Mt. Pleasant, Iowa	
Sullivan-Geiger Co., Indianapolis, Ind.	
Whitaker-Glessner Co., Wheeling, W. Va.	
Polish—Metal.	
Black Silk Stove Polish Works, Sterling, Ill.	
Nickel Plate Stove Polish Co., Chicago, Ill.	
Polish—Stoves	
Black Silk Stove Polish Works, Sterling, Ill.	
Nickel Plate Stove Polish Co., Chicago, Ill.	

Posts—Steel Fence. American Steel & Wire Co., Chicago, Ill.	Screw Drivers. North Bros. Mfg. Co., Philadelphia, Pa.	Stoves—Camp. Quick Meal Stove Co., St. Louis, Mo.	Ventilators. Berger Bros. Co., Philadelphia, Pa.
Punches. Bertsch & Co., Cambridge City, Ind. Niagara Machine & Tool Works, Buffalo, N. Y. Whitney Mfg. Co., W. A., Rockford, Ill.	Sheets—Black and Galvanized. American Sheet & Tin Plate Co., Pittsburgh, Pa. Brier Hill Steel Co., Youngstown, Ohio Inland Steel Co., Chicago, Ill. Knoedler, Frederick J., Philadelphia, Pa. Whitaker-Glessner Co., Wheeling, W. Va.	Stoves—Oil and Gasoline. Quick Meal Stove Co., St. Louis, Mo.	Friedley-Voshardt Co., Chicago, Ill. Merchant & Evans Co., Philadelphia, Pa. Standard Ventilator Co., Lewisburg, Pa. Thomas & Armstrong Mfg. Co., London, Ohio
Ranges—Combination Gas and Coal. Globe Stove & Range Co., Kokomo, Ind. Quick Meal Stove Co., St. Louis, Mo.	Sheets—Blue Annealed. Brier Hill Steel Co., Youngstown, Ohio	Stoves and Ranges. Danville Stove & Mfg. Co., Danville, Pa. Globe Stove & Range Co., Kokomo, Ind. Quick Meal Stove Co., St. Louis, Mo.	Ventilators—Ceiling. Hart & Cooley Co., New Britain, Conn. Henry Furnace & Fdy. Co., Cleveland, Ohio
Rasps. Disston & Sons, Inc., Henry, Philadelphia, Pa. Nicholson File Co., Providence, Rhode Island	Sifters—Ash. Diener Mfg. Co., G. W., Chicago, Ill.	Stove Pipe Reducer. Sullivan Gieger Co., Indianapolis, Ind.	Vises. North Bros. Mfg. Co., Philadelphia, Pa. Rock Island Mfg. Co., Rock Island, Ill.
Ranges—Electric. Globe Stove & Range Co., Kokomo, Ind.	Sifters—Flour. Meyers Mfg. Co., Fred J., Hamilton, Ohio	Tacks, Staples, Spikes. American Steel & Wire Co., Chicago-New York	Wagons—Auto Wheel Coaster Buffalo Sled Co., North Tonawanda, N. Y.
Registers—Warm Air. Dover Wood Face & Lbr. Co., Dover, Ohio	Sleds. Buffalo Sled Co., No. Tonawanda, N. Y.	Tapes. Lufkin Rule Co., Saginaw, Mich.	Wire. American Steel & Wire Co., Chicago, Ill.
Hart & Cooley Co., New Britain, Conn. Henry Furnace & Fdy. Co., Cleveland, Ohio Independent Reg. & Mfg. Co., Cleveland, Ohio Rock Island Register Co., Rock Island, Ill. Stearns Register Co., Detroit, Mich. Waterloo Register Co., Waterloo, Iowa	Solder. Merchant & Evans Co., Philadelphia, Pa.	Tiles and Shingles—Metal. Cortright Metal Roofing Co., Philadelphia, Pa.	Wood Faces. Dover Wood Face & Lbr. Co., Dover, Ohio
Register Shields. Hall-Neal Furnace Co., Indianapolis, Ind.	Soldering Fluid. Towner, F. A., Muskegon, Mich.	Merchant & Evans Co., Philadelphia, Pa. Milwaukee Corrugating Co., Milwaukee, Wis. Thomas & Armstrong Mfg. Co., London, Ohio	Wrenches. Bemis & Call Hdw. & Tool Co., Springfield, Mass. Coes Wrench Co., Worcester, Mass.
Repairs—Furnace. Northwestern Stove Repair Co., Chicago, Ill.	Soldering Irons. Lupton's Sons Co., David, Philadelphia, Pa.	Tin—Perforated. Harrington & King Perforating Co., Chicago, Ill.	<div> <p>¶ ADVERTISING is today the mightiest factor in the business world. It is an evolution of modern industrial competition. It is a business builder, with a potency that goes beyond human desire. It is something more than a "drummer" knocking at the door of the consumer—something more than mere salesmanship-on-paper. It is a positive, creative force in business. It builds factories, skyscrapers and railroads. It makes two blades of grass grow in the business world where only one grew before. It multiplies human wants and intensifies human desires. It furnishes excuse to timorous and hesitating ones for possessing the things which under former conditions they could easily get along without.</p> <p>¶ Better begin to advertise at once. Every day of waiting is a day wasted.</p> </div>
Repairs—Stove. Northwestern Stove Repair Co., Chicago, Ill.	Soldering Paste. Towner, F. A., Muskegon, Mich.	Tinplate. American Sheet & Tin Plate Co., Pittsburgh, Pa.	
Rolls—Forming. Bertsch & Co., Cambridge City, Ind. Niagara Machine & Tool Works, Buffalo, N. Y.	Soldering Furnaces. Clayton & Lambert Mfg. Co., Detroit, Mich.	Knoedler, Frederick J., Philadelphia, Pa. Merchant & Evans Co., Philadelphia, Pa.	
Roofing—Iron and Steel. American Sheet & Tin Plate Co., Pittsburgh, Pa. Brier Hill Steel Co., Youngstown, Ohio Cortright Metal Roofing Co., Philadelphia, Pa. Friedley-Voshardt Co., Chicago, Ill. Inland Steel Co., Chicago, Ill. Merchant & Evans Co., Philadelphia, Pa. Milwaukee Corrugating Co., Milwaukee, Wis. Whitaker-Glessner Co., Wheeling, W. Va.	Diener Mfg. Co., G. W., Chicago, Ill. Double Blast Mfg. Co., North Chicago, Ill. Quick Meal Stove Co., St. Louis, Mo.	Tools—Auto Repair. Curfman Mfg. Co., F. L., Maryville, Mo.	
Roasters. Whitaker-Glessner Co., Wheeling, W. Va.	Specialties—Hardware. Bemis & Call Hdw. & Tool Co., Springfield, Mass.	Tools—Carpenters' Disston & Sons, Inc., Henry, Philadelphia, Pa. Lufkin Rule Co., Saginaw, Mich. North Bros. Mfg. Co., Philadelphia, Pa.	
Rubber Hose. Dominion Asbestos & Rubber Corp., New York, N. Y.	Corbin Screw Corporation, New Britain, Conn.	Tools—Sheet Metal. Bertsch & Co., Cambridge City, Ind.	
Rubbish Burners. Hart & Cooley Co., New Britain, Conn.	Diener Mfg. Co., G. W., Chicago, Ill.	Drels & Krump Mfg. Co., Chicago, Ill.	
Rules. Lufkin Rule Co., Saginaw, Mich.	Disston & Sons, Inc., Henry, Philadelphia, Pa.	Niagara Machine & Tool Works, Buffalo, N. Y.	
Saws. Disston & Sons, Inc., Henry, Philadelphia, Pa.	Lufkin Rule Co., Saginaw, Mich.	Ryerson & Son, Jos. T., Chicago, Ill.	
Schools—Sheet Metal Pattern Drafting. St. Louis Technical Institute, St. Louis, Mo.	North Bros. Mfg. Co., Philadelphia, Pa.	Whitney Mfg. Co., W. A., Rockford, Ill.	
Screens—Perforated Metal. Harrington & King Perforating Co., Chicago, Ill.	Rock Island Mfg. Co., Rock Island, Ill.	Tools—Tinsmiths' Bertsch & Co., Cambridge City, Ind.	
Stock Tanks. Thomas & Armstrong Mfg. Co., London, Ohio	Speedometers—Bicycle. Corbin Screw Corporation, New Britain, Conn.	Double Blast Mfg. Co., North Chicago, Ill.	
Stock Waterers. Rock Island Mfg. Co., Rock Island, Ill.	Stars—Hard Iron Cleaning. Fanner Mfg. Co., Cleveland, Ohio	Drels & Krump Mfg. Co., Chicago, Ill.	
	Statuary. Friedley-Voshardt Co., Chicago, Ill.	Knoedler, Frederick J., Philadelphia, Pa.	
	Gerock Bros. Mfg. Co., St. Louis, Mo.	Niagara Machine & Tool Works, Buffalo, N. Y.	
	Steel Sheets. Ryerson & Son, Jos. T., Chicago, Ill.	Ryerson & Son, Jos. T., Chicago, Ill.	
	Transit Companies. Cleveland & Buffalo Transit Co., Cleveland, Ohio	Torches—Gasoline. Clayton & Lambert Mfg. Co., Detroit, Mich.	
	Trimming—Stove. Fanner Mfg. Co., Cleveland, Ohio	Diener Mfg. Co., G. W., Chicago, Ill.	
	Transit Companies. Cleveland & Buffalo Transit Co., Cleveland, Ohio	Double Blast Mfg. Co., North Chicago, Ill.	
	Trimming—Stove. Fanner Mfg. Co., Cleveland, Ohio	Quick Meal Stove Co., St. Louis, Mo.	

WANTS AND SALES

For paid yearly subscribers, **AMERICAN ARTISAN AND HARDWARE RECORD** will insert under this head advertisements of not more than fifty words **WITHOUT CHARGE**. Employers wishing to secure employes, parties desiring to purchase or sell business, secure partners, or to exchange, etc., will find that these pages offer excellent opportunities to satisfy their wants. Clerks and tinsmiths looking for situations will find it to their advantage to use these columns. Those who respond to these announcements please mention that they "READ THE ADVERTISEMENT IN AMERICAN ARTISAN AND HARDWARE RECORD."

BUSINESS CHANCES

Wanted—1,200 to 1,500 feet good sound used cast-iron steam boiler. Address Manley Hardware Co., Harvard, Illinois. 1-3t

Wanted—To hear from owner of good hardware store for sale. State cash price and description. Address D. F. Bush, Minneapolis, Minnesota. 1-1t

For Sale—Patent of wire clothes pin. Better than any other pin. Entirely new. Write for particulars to H. M. Byron, R. D. No. 1, Three Bridges, New Jersey. 25-3t

For Sale—15 good used hard coal heaters, Jewel, Favorite and Round Oaks, some used only one winter. Address Manley Hardware Co., Harvard, Illinois. 1-3t

Wanted—Pipeless furnace to job within radius of fifty miles. Highest quality. Send full descriptions and proposition. Van Denberg Supply Company, Rockford, Illinois. 25-3t

For Sale—An up-to-date stock of stoves, hardware and tinware, invoiced from four to five thousand dollars. Located at Maysville, Kentucky. Mrs. W. F. Power, Maysville, Kentucky. 26-3t

For Sale—Best equipped sheet metal and roofing shop in Montana, near oil fields. Plenty of work contracted and in sight. Will sell at invoice. J. B. Heavlin, Lewistown, Montana. 25-10t

For Sale—Quantity of sanitary indoor closets; also some top and bottom castings and patterns for same. Will sell the entire lot at a bargain. Beuret Heating Company, Auburn, Indiana. 26-3t

Lightning Rods—Big profits and quick sales to live dealers selling "DIDDLE'S UNIVERSAL RODS." Our copper tests 99.96% pure. Prices are right—get our agency. L. K. Diddle Company, Marshfield, Wisconsin. V78-12-52t

For Sale—Seven crates or 840 elbows 4" pln. rod No. 4 or 90%; three crates or 450 elbows 4" pln. rod No. 1 or 45%; elbows in original crates, slightly dulled in color because of storage. Address Geo. A. Van Landegend, Holland, Michigan. 1-3t

For Sale—A plumbing, heating and sheet metal business; only shop in town of 2,000, located in eastern Illinois, 100 miles south of Chicago. I do all of city tapping and plumbing work. Will lease or sell building. Address J. E. Fitzwater, Rossville, Illinois. 1-3t

For Sale—An old established metal and plumbing shop, in a thriving town of 2,500—mills and farming. No competition, busy all the year around. Work for three men. Reason too old to continue in business. Will pay to investigate. Address Chas. Schwenk, Cass Lake, Minnesota. 1-3t

For Sale—Hardware in Lyon County, Iowa. Old established business. Stock of \$8,000. Fixtures and tools, \$2,000. Good money making opportunity. Do plumbing and tinning. Town is planning to put in sewers. Best location. For cash only. Address reply B-3, care of AMERICAN ARTISAN AND HARDWARE RECORD, 620 South Michigan Avenue, Chicago, Illinois. 26-3t

BUSINESS CHANCES

For Sale—Sheet metal shop, doing a good business. We do \$5,000 worth of auto radiator work a year, and is still growing. Investigate. Reason for selling, rheumatism. Address J. W. Green, Redlands, Colorado. 26-3t

HELP WANTED

Wanted—First-class tinner. Steady employment. Phelps Hardware Company, Sterling, Illinois. 26-3t

Wanted—Several tanners at once. For information write to Geo. J. Schwickert, Mankato, Minnesota. 1-3t

Wanted—A handy man for a country tin shop. Steady work. State wages, etc. S. J. Pelz, Clinton, Wisconsin. 25-3t

Wanted—A good all around tinner and furnace man. Good wages. E. A. Schmidt, Grand Rapids, Wisconsin. 24-3t

Wanted—Tanners who will do outside and inside work. Steady job the year round. Bongard Sheet Metal Works, 209 Cave Springs Avenue, El Dorado, Kan. 17-U. F. N.

Wanted—Two good sheet metal workers. \$1.25 per hour. Union shop. Steady work. Wire if you can come. H. H. Bain Sheet Metal Works, Shreveport, Louisiana. 25-3t

Wanted at Once—Experienced solderer for milk can work. Ten hours a day, \$36.00 a week. Write or wire to Kokborg Retinning Works, Richland Center, Wisconsin. 24-3t

Wanted—Three good tanners for roofing and gutter work and furnace installation. Address Forest City Hardware Company, 1105 Fourteenth Ave., Rockford, Illinois. 1-3t

Wanted—Plumber and sheet metal worker. Steady position. Kindly address B-5, care of AMERICAN ARTISAN AND HARDWARE RECORD, 620 South Michigan Avenue, Chicago, Illinois. 1-3t

Wanted at Once—An A-1 combination mechanic who is able to do plumbing, general heating, tin and sheet metal work. Steady job for the right man. A. L. Spradling, Hoopeston, Illinois. 26-3t

Wanted—A first-class auto radiator repair man, one who understands recore work. A steady job for the right man. No tin shop connected with this shop. Address Martin Gerber, Iowa City, Iowa. 25-3t

Wanted—Clerk with some experience in hardware store. Would prefer one who can do some tin work. Steady employment all year around to right party. Address H. E. Flesher, Lexington, Illinois. 1-3t

Wanted—Boy who has had from one to two years' experience in the metal line to finish trade. Good opportunity for right boy. State wages desired. Southwick Metal Company, 1913 State Street, Granite City, Illinois. 26-3t

Wanted—A working foreman in general cornice and roofing shop, one who is not afraid of work or undesirable jobs in dull seasons. Steady work and best wages. John J. Beard, 559 West Main Street, Lexington, Kentucky. 25-3t

Wanted—A man who understands farm machinery, setting up and selling, and can do furnace work and ordinary tin-shop work, in a country hardware store. Steady job to the right man. H. D. Powers, Grand Rapids, Minnesota. 26-3t

Wanted—Good sheet metal worker and furnace man. Steady job. Married man preferred. Kindly address B-4, care of AMERICAN ARTISAN AND HARDWARE RECORD, 620 South Michigan Avenue, Chicago, Illinois. 1-3t

Wanted—A good combination man to do plumbing, heating and tin work. Prefer man who will estimate the jobs. Want man with some hardware experience. Give reference and state wages wanted. Married man preferred. Address Carhart Hardware Co., Emerson, Nebraska. 1-3t

Wanted—Foundrymen, tanners and plumbers to invest small amounts in the Akers National Stove and Specialty Company, soon to build a big new plant in Kansas City. Responsible jobs in the factory are to be given first to stockholders. Address Mr. Tracy, 710 K. C. Life Building, Kansas City, Missouri. 1-3t

HELP WANTED

Wanted—First class tanners and furnace men, \$1.00 per hour. Steady work. Address The Lindas Company, Kenosha, Wisconsin. 1-3t

Wanted—Four good furnace installers, capable of installing large church fan jobs. Campbell Heating Company, 1313 Locust Street, Des Moines, Iowa. 25-3t

Wanted—Good all around tanners and furnace men. Steady work all year around. Wages \$1.00 per hour. Phone or write. H. N. Schwery, Highland Park, Illinois. Phone 555. 1-3t

SITUATION WANTED

Situation Wanted—As manager or clerk in a hardware store. Am an A-1 furnace man. Can also do bookkeeping. Best of references will be furnished. Address B-2, care of AMERICAN ARTISAN AND HARDWARE RECORD, 620 South Michigan Avenue, Chicago, Illinois. 26-3t

Situation Wanted—By a first-class tinner. Have had 17 years' experience in selling and installing furnaces; also three years' experience in blow pipe work. Am 39 years old and married. Michigan preferred. Only steady job considered. Address B-1, care of AMERICAN ARTISAN AND HARDWARE RECORD, 620 South Michigan Avenue, Chicago, Illinois. 26-3t

Situation Wanted—First-class sheet metal worker and pattern draftsman is open for position July 1st. Own complete shop equipment. Have had executive experience in several large cities. Will consider partnership in new shop or superintendency in going shop. State your proposition in first letter. Room 25, Greenville Inn, Greenville, Mississippi. 24-3t

Situation Wanted—Good mechanic. 15 years' experience, desires change of location. Can take charge of shop. Experienced in skylight, cornice, ventilating, furnace and all job work. Work from blue print and develop patterns. Desire a place where I can buy a home and move family. Good reasons for changing and best of references can be furnished. Address O. E. Ebert, Box 72, Sioux City, Iowa. 1-3t

TINNERS' TOOLS

Wanted—To Buy—A second hand small burring machine with Rotary standing. Must be in fairly good condition and at a low price. Also want small tinner's tools or machines. Address S. B. Egbert, 812 May Street, Hood River, Oregon. 1-3t

BOOKS

Wanted—Warm Air Heater Installers to read **PROGRESSIVE FURNACE HEATING**. A practical manual of designing, estimating and installing modern systems for heating and ventilating buildings with warm air. Profusely illustrated. The whole range of the subject is concisely and fully covered. There is nothing highly technical in this book, no methods not easily comprehended and applied. Size, 6x9 inches, 280 pages, 189 illustrations. By Alfred G. King. Price, \$3.00. With AMERICAN ARTISAN one year (52 issues), \$4.25. Get a copy of this book now. Read it in your spare time and learn more about your important business. All books sent prepaid. No books exchanged. AMERICAN ARTISAN, 620 South Michigan Boulevard, Chicago, Illinois.

For Sale—Good chance to buy a book that will prove of much value to pattern cutters. If you want to be real efficient you should know **Triangulation as Applied to Pattern Cutting**. This book, **Triangulation**, is a complete treatise on the subject and contains practical solutions of problems of frequent occurrence in sheet metal shops. **Triangulation** has 272 pages and is illustrated with 124 engravings in lines and half-tone, including many reproductions of photographs of sheet metal models made expressly for this work. Price is \$3.00. Order yours today. Ask for complete list of books and patterns that are of great value to sheet metal workers. All books sent prepaid. No books exchanged. Address AMERICAN ARTISAN, 620 South Michigan Boulevard, Chicago, Illinois.